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EDITORIAL—SOME HIGHLIGHTS

I General Economic Scene

State :

Annual Plan :

Negotiations in January between the Chief Minister and State representatives on the one hand and the Deputy Chairman and staff of the Union Planning Commission on the other hand, resulted in establishing the Plan outlay for 1978-79 at Rs. 305 crores, which was higher than both the 1977–78 outlay of Rs. 260.12 crores and the State proposal of Rs. 297.50 crores drawn up before the devastation caused by the floods and cyclone. Normally the Annual Plan for 1978–79 should be the fifth and final year sector of the Fifth Plan. But in light of the decision to terminate the Fifth Plan after four years in 1977–78, and start the Sixth Plan in 1978–79 (see Vol VII p 687), this is the first year of the Sixth Plan for the State. The Rs. 305 crores Plan outlay comprises Rs. 114.12 crores for power, Rs. 36.27 crores for agriculture, Rs. 29.95 crores for irrigation, Rs. 6.09 crores for co–operatives, Rs. 13.92 crores for industry, Rs. 27.03 crores for roads and road transport, Rs. 6.27 crores for education, Rs. 26.34 crores for water supply and sewage and Rs. 35.01 crores for other sectors. The higher plan outlay accepted by the Planning Commission includes the payment of Rs. 30 crores as salaries and emoluments as a result of the recommendations of the Third Pay Commission, Rs. 24 crores in paying State employees DA allowances at Central government rates, economising Rs. 15 crores in its expenditures and raising an additional Rs. 15 to 20 crores as revenue.

Inter-State Poverty Profile :

The latest round (28th) of the National Sample Survey of Consumer Expenditure for 1973–74 places poverty in the rural areas at Rs. 43 per capita per month (in 1960–61 it was placed at Rs. 15), and in urban areas at Rs. 55 per capita per month (in 1960-61 it was placed at Rs. 21). On this basis for the country as a whole 45.51 per cent of the population is living in poverty, including 25.99 per cent in destitution and 13.24 per cent in severe destitution. Tamil Nadu has the second largest percentage of people living in poverty (second only after Orissa) 54.83 per cent, including the third largest percentage among the States of those living in destitution at 32.98 per cent and the fourth largest living in severe destitut

at 17.94 per cent. In the rural areas of the State, the percentage of people living in poverty is the third highest among the States at 54.17 per cent, including 33.37 per cent living in destitution and 19.06 per cent in severe destitution. In the urban areas, the poverty percentage (which is the fourth highest among the States) is 56.29 including 32.14 per cent living in destitution and 15.43 per cent in severe destitution. With regard to cereals and cereals substitute consumption, in the rural areas the per capita monthly consumption is 15.06 kg., of which rice consumption is 10.53 kg. and in the urban areas it is 11.41 kg., of which rice consumption is 10.56 kg. In both cases the State is at 7th and 6th place from the bottom. Between the 27th and 28th rounds, (between 1970-71 and 1973-74) there has been no improvement in the poverty profile of the State, though there seems to be some small upward movement in regard to destitutes and severe destitutes. These comments are on the assumption that the statistical quantities reported in the NSS round capture the consumption habits of the people fairly accurately.

‌Supplementary Budget and Prices :

‚January was a cool, dry month, with the ılign work of rehabilitation of the flood lamaged areas proceeding apace and ıgricultural operations moving forward o make up for the losses in November, s will be noted later. The State govern- ıent was planning and taking action to ɔunter the rise in prices of consumer ɔods consequent on the floods. In addi- ɔn to the 829 retail points established ' the Civil Supplies Corporation, by the d of January 442 new fair price shops ·re established and the entire district of ınelveli was covered by a shop in each revenue village. In February, the districts of Madurai and Ramanathapuram will be covered. For the scheme Rs. 20 lakhs as initial capital subsidy and Rs. 25 lakhs for recurring costs were provided in the supplementary estimates of Rs. 94.35 crores approved by the legislature in early January. Of the total, Rs. 46.72 crores were for flood and cyclone relief and rehabilitation, Rs. 15 crores were for the Electricity Board, Rs. 15 crores were for Civil Supplies Corporation, and Rs. 3 crores were for the Water Supply and Drainage Board. The State is planning to purchase various essential commodities throughout the country and distribute them through the wholesale co-operative marketing societies. The commodities to be so purchased include edible oils, pulses, tamarind, coriander seeds, chillies and groundnut. They will be distributed at reasonable rates through the fair price shops The costs would in part be met by the National Co-operatives Development Corporation. In addition, a pilot scheme for the sale of vegetables and other essential commodities from house to house by the co-operative societies in the city was inaugurated in January. In 20 divisions of the city 5,000 families are being so supplied. It will also provide employment to 1,000 unemployed youth. The effects of these measures in lowering retail prices will be seen in the coming months.

Power :

Power supply in the State in January was normal, with the thermal and hydel plants functioning satisfactorily. Owing to the satisfactory water levels in the hydel reservoirs, there will be no power cut this year. A pilot scheme for distributing power through co-operatives is to be tried out at Tudiyalur in

Coimbatore district and Kumbakonam in the Thanjavur district with assistance of Rs. 94 lakhs from REC to each scheme. The two rural electrification co-operatives would be responsible for distributing the power to meet the agricultural, industrial and other needs in their areas. The State also suggested at the end of December to Karnataka that the Hogenekal hydel project be jointly executed by the 2 States. In order to reduce losses due to defective meters, the supplementary estimates provide for special staff for meter reading, testing and taking action against theft of power. The scheme will start in the Erode and Tiruchirapalli systems. The Board's accounts for 1977-78 show a serious deficit of Rs. 29.41 crores, with income estimated at Rs. 179.80 crores and expenditures at Rs. 209.21 crores. The deficit is explained by the Board as being due to increased cost of production, cost of subsidised power, rising administrative costs and purchase of costlier power. Coal prices have increased from Rs. 79 per tonne in 1972-73 to Rs. 136 this year. Neyveli power which cost 8.1 paise per unit in 1972-73 now costs 16 paise and that from its oil fired units' energy costs 42 paise per unit. Kerala has doubled its rates to 12.5 paise per unit. The pooled cost of power in the State which was 6.2 paise per unit in 1972-73 has increased to 16.3 paise. Power at subsidised rates to agriculturalists costs Rs. 40 crores, to power intensive industries Rs. 8 crores and to domestic consumers Rs. 4.50 crores. The Board has however drawn up and is executing a plan for this year, 1977-78, of Rs. 94.91 crores. It received government loans of Rs. 43.54 crores and raised in open market borrowings Rs. 15.97 crores plus loans from REC and the banks. It faces a gap of Rs. 16.90 crores which it must raise as capital for this year's projects. To streamline its administration which has increased by 84 per cent in the last four years, it has constituted an O and M cell and an industrial engineering cell and is working to a manpower plan.

For the country as a whole, the power situation continued to present a mixed picture. Andhra Pradesh reports increasing its power output by 630 MW from 1,228 to 1,858 MW for the year ending March 1978. Also a second power house to generate 1,300 MW using the Srisailam Dam surplus waters has been approved. The super thermal plant at Ramagundam was approved in January by the Public Investment Bureau and the Union Finance Ministry for inclusion in the central sector at a cost of Rs. 765 crores. On the other hand, power shortage continued to hamper the economy in Uttar Pradesh where despite the increase in power generation by 260 MW upto March and 110 MW in March, the state faces a shortage of 600 MW. Rajasthan faced a deficit of 205 MW due to the failure of Baes unit II and the Atomic power project. In the VI Plan the deficit is estimated at 2,101 MK Kwh. Bihar with a generation capacity of 700 MW and utilisation of only 33 per cent, lost Rs. 100 crores in industrial production due to power shortages. Kerala obtained a Union government loan of Rs. 72 lakhs in January for developing inter-State transmission lines—from Idukki-Mysore (Rs. 60 lakhs), Idukki-Udumalpet (Rs. 10 lakhs) and Sabarigiri-Aryankavu (Rs. 2 lakhs). The Central Electricity Authority announced in January that a national power grid linking the entire country through a network of high transmission lines and other interconnected facilities will be developed within the next 10-12 years, on the basis

of regional grids that are now being developed. The Authority through the National Hydro-Electric Corporation has taken over its second project—the Rs. 92.12 crores three 60 MW unit Baira Siul project, the first one being the Rs. 32 crores Loktak project. REC on its side sanctioned in January Rs. 10.7 crores for 31 new projects, covering over 2,008 villages, energising 8,000 irrigation tube wells and pumpsets, 1,300 small scale and agro based industries and 2,700 street lights. At the conference of Chairmen of State Electricity Boards followed up by that of the State ministers of power in January, it was decided to ensure timely commissioning of power projects which are in an advanced stage of completion, improving the performance of thermal stations with particular reference to thc supply of equipment, coal and other inputs and the ways and means of improving the financial situation of the State Electricity Boards. It also agreed to undertake detailed material planning, manpower planning and co-ordination of activities at all levels, both to maintain project schedules and to make the material and manpower planning at the Union level aimed at adding 2,600 MW of power this year, realistic. At the ministers' conference which followed, the over 40 per cent underutilisation of capacity and overestimates in planning were noted. The conference of ministers decided to set up a high power committee of experts to examine the economics of the State Electricity Boards, their tariff structure for various categories of users, and make recommendations (which will have to reconcile the irreconcilables) ensuring that the agricultural rates are low on the one hand and that the overall rate enables the Board not only to break even but also to produce surpluses on the other. The conference also decided that in future, in coal based power generation, equipment would have to conform to the quality of fuel available in the country and not the other way around, BHEL production of boilers will be on this principle. The conference also decided that a task force under CEA would draw up by the end of February a time based programme for improving both generation and utilisation of installed capacity and that a similar exercise should be held once a year. To ensure that the commissioned targets are achieved, the monitoring of the construction programmes in the State must be organised within two months, and machinery would be set up to ensure objective selection of Chairmen and members of the Board in accordance with the functional needs of the Boards. Also a standing committee of the conference is being set up to review periodically the speed and manner of implementation of the ministers' conference recommendation. On the Sixth Plan power sector, there is some serious disagreement on the projections between the power survey committee and the Planning Commission. The committee forecasts that by 1983-84, 150 billion units will be needed. The Planning Commission points out that this implies a growth rate of 11.6 per cent (with 1973-74 as the base), whereas on the basis of past lower growth rates of power consumption, only 142 billion units will be needed. Particularly on industrial consumption, the committee estimate of 99.3 billion units implies a growth rate of 11.8 per cent compared to the actual 9 per cent growth between 1961-62 to 1971-72. There is thus an overestimate of 7.5 billion units, according to the Commission which also disagreed with the separate bulk provision of 4 billion units for new industries likely to be licensed in the

future. The Commission suggests an industrial power consumption of 91.8 billion units, implying a growth rate of 10.9 per cent per year, which is 20 per cent higher than past performance and provides a necessary cushion. Similarly the Commission reduces the energy needs for steel which at the end of the Sixth Plan it estimates at 10.37 million tonnes and for cement at 32 million tonnes. On the other hand the survey committee's estimate of the total deficit in 1983-84 of 17 billion Kwh. against the current 7.6 billion Kwh. and the increased transmission losses due to the growth of rural electrification is regarded by the Planning Commission as being on the high side. The Commission is of the view that with the improvement in the availability of generating sets and maintenance and given the fact that the proportion of energy consumed in the industry sector at the end of the Sixth Plan will be about the same as at its beginning, the power position will be better than that forecast in this ragard. The macro forecasts of the Planning Commission are convincing and need to be reconciled with the micro estimates of the survey committee.

Water :

In January the State government announced its decision to set up a groundwater authority to regulate the extraction and use of groundwater in the State. The Tamil Nadu Groundwater (Control and Regulation) Act introduced in the Legislature in January provides for the setting up of an Authority. The Bill is under study by a joint committee of the Legislature. On the agreement to provide 15 tmc of Krishna waters to Madras city through a Canal, the Rayalaseema Development Board in Andhra Pradesh has raised the question whether there is need for a separate canal for this purpose or whether a single canal which will meet both irrigation needs of the surrounding areas and supply the agreed water to Madras city would not be economical and so preferable. In January discussions between the Chief Ministers of Tamil Nadu and Kerala on the diversion of the West flowing rivers in Kerala for purpose of irrigation to Tamil Nadu were taken up.

Housing and MMDA :

Tamil Nadu was one of 13 States which received LIC loans in January amounting to a total of Rs. 13.3 crores to finalise social housing schemes. The Union government has directed that 40 per cent of the loan should be used for construction of houses for those with a monthly income of less than Rs. 350. 25 per cent could be used for housing for those with a monthly income of Rs. 351 to Rs. 600 and a further 25 per cent to those with monthly income between Rs. 601 to Rs. 1,000. The remaining 10 per cent could be used for rural housing schemes for State government employees. For Tamil Nadu, HUDCO has sanctioned so far 114 schemes with a loan commitment of Rs. 34 crores. Of these, 111 schemes are being executed by the Tamil Nadu Housing Board and the rest by other public sector undertakings and co-operatives. Under these schemes 23,000 houses are being built including 9,500 for EWS and 9,700 for LIG, in addition to developing 4,800 plots for these groups. In order to speed up the building programme in Madras city, the MMDA and the City Corporation have evolved a new scheme to admit planning permission and building applications (PPAs and BAs) simultaneously, enlarge the scope of scrutiny at the registration time itself and

for this have proposed appointment of a whole time executive engineer to dispose of the cases quickly. As a result the PPAs and BAs which were 1,000 and 400 in January 1977 were reduced to 600 PPAs 60 BAs in January 1978. In January also the legislature adopted the Madras Metropolitan Water Supply and Sewerage Act which gives statutory status to the Madras Metropolitan Water Supply and Sewerage Board and makes it the single constituted authority dealing with water and sewerage problems. The new Board's functions are the promotion of planned development, efficient operation, mainteance and regulation of water supply and sewerage system in the Metropolitan area and preparation of long term plans for the purpose, including abstracting water from natural sources and disposal of waste and polluted waters. It will control extraction, conservation and use of underground water, prevent pollution of any water and water course and prescribe the manner of treatment of industrial effluents before discharge in the MMDA area. The MMDA is also undertaking a Rs. 140 lakh scheme for developing the Vyasarpadi area where the Burma repatriates are settled, involving construction of 2 canals to drain off rain water from the area and free it of periodic inundation. This is part of the settlement of 1.1 lakh Burma repatriates in the State, for whom the Union government has made available Rs. 20.18 lakhs in grants and Rs. 39.55 lakhs in loans in 1977-78. Similarly about 40,000 Sri Lanka repatriates have been settled in Tamil Nadu and the Southern States for whom the Union government has made available to the States Rs. 29 crores. About 12,000 repatriates are absorbed in plantations and in industrial and agricultural occupations after a stay in the transit camps at Mandapam, Kottapattee and Gummidipoondi.

Communication :

The first broad band long haul micro wave system in the South is being completed by March and will both expand, strengthen and improve the reliability of the net work and provide a TV channel between Madras and Bombay and enable a national X TV hookup. The telephone system in Madras is being stabilised, serving over I lakh subscribers and with only 2,628 applicants waiting for new telephone connections. Further expansion of the system is being planned therefore only after 1980. In addition to the 1,359 sub post-offices and 8,051 branch post-offices in the rural areas of the State, in 1978 124 new post offices are to be opened in rural Tamil Nadu and counter facilities provided in 3.000 villages. This means that the State will be the first in the country in which a daily delivery system will operate in all villages. As part of establishing a permanent coastguard service this year, the Union government announced that Madras will be the headquarters of the Eastern regional service, with coastguard Districts at Haldia, Paradeep, Vishakhapatnam and Madras. The district headquarters will control all operations by coastguard ships and aircraft, ensure law enforcement in the country's territorial waters, safety of life and property at sea, assist the customs in anti-smuggling operations, watch over poaching by fishing craft and detect pollution of the seas. Madras Corporation announced receiving Rs. 2 crores for repair of roads damaged by the November rains and cyclone of which Rs. 1 crore is being expended upto March 1978 and the other crore in 1978-79 to restore road communications in the metropolitan area.

Debt, Tenancy and Other Legislation :

The Assembly in January passed the Tamil Nadu Debt Relief Laws (Amendment) Act to extend upto July 15, 1978 the period of moratorium on recovery of debts from agriculturalists and non-agriculturalists as also the ban on the sale by pawnbrokers of the articles pledged with them, as the relief measures were due to lapse on January 16, 1978. A more comprehensive bill on this question, replacing this legislative enactment which has to be passed every half a year, is to be brought forward by the government before the expiry of this Act. The Assembly also adopted in January the extension of the Tamil Nadu Cultivating Tenants (Protection from Eviction) Act for a further 6 months period (upto July 15) to give protection to cultivating tenants from eviction for being in arrears of rent. Also in January the legislature adopted the Cyclone and Flood Affected Areas Cultivating Tenants (Temporary Relief) Bill to protect tenants from eviction or litigation upto January 15, 1979 for non-payment of rent. The Tamil Nadu Entertainments Tax and Local Authorities Finance (Amendment) Bill providing for a gross levy per show based on the gross collection capacity of cinemas was adopted in January by the legislature, based on the recommendations of the Film Industry Enquiry Committee, replacing the existing multiple taxes by a single levy per show in order to check tax evasion.

Welfare :

The State government in January ordered payment upto Rs. 5,000 for the rehabilitation of widows and children of fishermen who die during fishing operations, with a view to making them self-reliant. This is over and above the increase in financial aid from Rs. 1,000 to Rs. 5,000 which has been given effect to from July 25, 1977. A Fishermen's Welfare and Relief Fund Committee has also been constituted by the government to extend financial aid to dependent family members of fishermen who die during fishing operations, to grant scholarships for school or vocational studies for their children, to provide food, clothing and other essential assistance to fishermen during floods, cyclonic storms, tidal waves, fire and accidents, to organise the annual fishermen's week to raise funds for them and to organise wide ranging non-formal education in fishermen's colonies. This is a substantial welfare programme, which is needed to compensate to some extent the risks run by this group of workers. The first meeting of the State Committee on Women met in Januray to review the women's welfare programme and accelerate its progress. Its scope covers the legislative and administrative measures relating to women, their employment potential, the organisation of seminars, health care and nutrition and facilities for working women and more generally the removal of economic and social injustices, disabilities and discrimination to which women are subject. The committee has been set up at the suggestion of the Union government, which has a National Committee on Women to advise it on the measures to be taken to accelerate the involvement of women in the development process and to improve their *de facto* position.

National :

Sixth Plan : First Annual Plan :

The first Annual Plan for 1978-79 of the Sixth Plan is shaping up. Because of resource constraints, the Plan is being

developed on two alternative lines. The first sets forth the desirable and needed level of Plan outlays to implement the new priorities of the government. The *second* is based on actual estimated resources where there is a sharp contraction of resource mobilisation by the *States.* For this *year,* though the Union government has agreed to provide half of their budgetary deficits, most states have not been able to raise the other half. This means that there will be a serious shortfall in financial expenditures and with their carryover to the first Annual *Plan of the Sixth Plan and the insistance* of the States for greater Union financing, rather than their raising additional resources, there is little chance of the 1978-79 plan being at any but a lower level. This is also the conclusion from the point of view of the Union government's *resources which are* not expanding and with regard to the increasing deficits situation that Union budget for 1977-78 faces and will be presented to the Lok Sabha in February end. The growing foreign exchange reserves cannot be used as investment resources because of *the lack of rupee resources* and more importantly the tradition that we have built up of not importing if we can. Thus of the Rs. 800 *crores to be drawn from* the reserves this year incorporated in the budget (see Vol VII p 690), very little has been used for capital goods imports. It *has been used to* import fertilisers and cotton and edible oils. Though the import of capital equipment has been liberalised, the foreign *exchange resources* which are building up can be used to finance plan projects only if we reverse our priorities and give preference not to *projects with the* lowest foreign exchange component but with the largest. But this needs to be carefully worked into a policy in order not to *interrupt the growth* of self-reliance of the economy. From *this point of view, power projects* in the Annual Plan provide the major means of using our foreign exchange reserves through importing power equipment and *this is one reason* why the priority for power could be translated by making full provision for the projects in the Annual Plan. Thus every State is being *presented* with two alternatives—the *desirable level* and the *resource based* level. Tamil Nadu picked the former as noted earlier and faces the consequent *challenge* of *raising* the additional resources.

Economy :

CSO's quick estimates for 1976-77 show that the *national income rose by* 1.4 *per cent (compared to* 8.8 *per cent* rise in 1975-76), and with the 2 per cent population growth there was an actual fall in per capita income by 0.6 per cent. There was also a decline in the rate of capital formation from 14.4 per cent in 1975-76 to 13.9 per cent in 1976-77 *(from* Rs. 1,743 *crores to* Rs. 907 *crores)* due to poor performance of the private sector and reduction in stocks of the public sectors. The rate of savings rose sharply to 15.9 per cent—the highest ever at Rs. 11,517 crores (in 1975-76 14.6 per cent) due mainly to increased savings by the household sector from Rs. 5,897 crores in 1974-75 to Rs. 7,122 crores in 1975-76 to Rs. 9,028 crores in 1976-77. In the public sector, the savings of non-departmental undertakings did not fall (they rose from Rs. 283 crores in 1974-75 to Rs. 459 crores in 1975-76 and *remained* at that level), *savings of the* several government sectors declined from Rs. 2,223 crores in 1975-76 to Rs. 1,843 crores in 1976-77. At 1970-71 prices, the national income was Rs. 40,164 crores in 1976-77 and Rs. 39,626 crores

in 1975-76, with per capita income being Rs. 655 and Rs. 654 on these two dates. At current prices the national income was Rs. 64,279 and per capita income Rs. 1,049. Private consumption expenditure in 1976-77 was Rs. 55,111 crores, accounting for 71.6 per cent of GNP, falling from 73.6 per cent in 1974-75. Otherwise the pattern of consumption expenditure has remained the same, the major expenditure item being food. Foodgrain productions declined from 121.0 million tonnes in 1975-76 to 111.6 million tonnes in 1976-77, oil seeds from 9.9 million to 7.8 million tonnes. Other sectors registered increases: manufacturing by 9.7 per cent, construction 9.6 per cent, electricity, gas and water supply 11.1 per cent and railway 7.4 per cent. This supplements the picture of the performance of the economy given in the Bulletin based on government data for the year 1976-77 (see Vol. VII pp 213-214, 284-285 and 431-433).

Prices and Anti-Inflation :

The wholesale price index for December registered a decline of 0.4 per cent for the month at 183.9. Sugar prices fell by 7.1 per cent, followed by oil seeds by 3.2 per cent, edible oils by 0.8 per cent, pulses by 0.7 per cent, tyres and tubes by 0.6 per cent, while jute prices went up by 2.5 per cent, transport equipment by 2.3 per cent, drugs and medicines by 1.9 per cent and fibres by 1.5 per cent. The government took steps to bring sugar prices further down to Rs. 3.60 to Rs. 3.70 per kg. from the average Rs. 5 per kg. a year ago. STC has been directed to dispose of 47,000 tonnes in the port godowns at concessional prices—Rs. 335 per quintal for co-operatives and Rs. 345 for private trade. The government announced in January a plan to import edible oils and an edible oil policy for the country to keep down oil prices. The government also instructed all scheduled commercial banks to achieve a credit—deposit ratio of at least 60 per cent for their rural and semi-urban branches by March 31, 1979. This means that 40 per cent of deposits are set aside for liquidity purposes and the remaining funds for credit deployment will have to used entirely in the rural area. The flow of rural funds to metropolitan areas will be stopped from 1979. RBI has set up a committee to review various schemes of commercial banks now operating in rural areas and has asked it to recommend new areas of operations. On the credit front, the government does not want any lowering of interest rates on bank loans and credits in view of the fact that the budgetary deficit will be substantially higher than what was forecast in the document, as noted earlier. Meanwhile action on some individual prices could add to the inflationary pressures. There is likely to be an increase in rubber prices; the price of cement was increased by Rs. 20 per tonne from early January, withdrawing at the same time the scheme of reimbursement on supplies to government departments but exempting imported cement from customs duty, auxiliary customs and countervailing duty. All this seems to point to a trend for stable prices or rather statutory prices due in some measure to the persistence of recessionary conditions in the economy and the slowdown in bank credit for commercial purposes. The major event in January was the demonetisation of notes of Rs. 1,000 and above on January 16. It was a very well kept secret and was notified to the nation on the night of January 16. The banks were given a holiday on January 17 to prepare and present the returns on their holdings

of Rs. 1,000 notes and above to the RBI by that evening and the public was given time upto January 19 to present their holdings to local public sector banks and till January 24 to the RBI. The demonetisation had only marginal effects on the price level and cannot be described as an anti-inflationary measure. It was directed essentially at anti-smuggling and anti black market operators and possibly with the February assembly elections in five States in mind. By January, Rs. 103.37 crores had been declared, surrendered or presented for exchange, which is about 50 per cent of these high denomination notes issued by RBI. If it turns out that 50 per cent of these notes have been immobilised, then the operation against illegal use of these funds must be termed successful.

Jha Committee Report and RBI Operations :

The report of the Committee (Jha) on indirect taxation (see Vol. VIII p 74) is now under study by government. Its main recommendation is that at present indirect tax system does not have adequate income elasticity and hence should be broad based, involving changeover from specific to *ad valorem* taxes. This would make tax revenues conform more closely to the rise in national income. To evolve a stable tax structure, the first objective will be to keep its incidence on lower income groups low and maintain a non-discriminatory stand. Octroi is recommended for abolition, which is this State's healthy situation and should be followed by others, who should not make the country as a whole pay for metropolitan agglomorations. With regard to RBI, a proposal under study by the previous government for the appointment of foreign investment counsellors to advise the bank on investing the country's growing foreign axchange reserves has been rightly set aside., because the sums involved, Rs. 4,000 crores by January going up to Rs. 5,000 crores by March perhaps, are not large, and the country has the expertise anyway. Also the composition of the reserve, — mainly remittances from abroad—and its steady and stable quantum makes investment possibilities—Indian or foreign—of the resources not important.

Industry and the Public Sector :

RBI's September Bulletin in a review of 1,650 companies for 1975-76 finds that on the whole industrial performance was poor, (a) though the value of production and sale recorded 9.2 and 11.5 per cent growth, that was lower than 29.1 and 29.6 per cent recorded in 1973-74 (b) with higher rates of growth in sales, than in value of production, the rate of accumulation of finished goods declined from 34.7 per cent to 13.1 per cent, (c) the rate of growth in total expenditure at 12.5 per cent increased the rate of growth of total income by 3 per cent and so operating profits declined by 26.7 per cent and profits before tax declined by 21.7 per cent, (d) tax provision was lower by 5.4 per cent and profits after tax declared by 37.2 per cent, with declared dividends being higher and plough back of projects being reduced by 62.0 per cent, (e) all the profitability ratios were down, gross profits as percentage of sales, gross profits as percentage of total net assets, profits after tax as percentage of net worth and profits after tax less dividends as percentage of ordinary paid up capital declared, the fall in the first and last being less than 10 per cent, (f) gross assets formation declined to Rs. 1,296 crores from Rs. 1,940 crores in the pre-

vious year, due mainly to inventory accumulation, (g) the relative dependence on external finance increased to 57.4 per cent from 54 per cent, (h) the ratio of current assets to current liabilities declined from 1.31 to 1.25 per cent and debt as percentage of equity increased from 38.7 per cent to 40.8 per cent, (i) the number of profit making companies and their aggregate profits declined, while the loss incurring companies and their total losses increased. In January, the Union finance ministry finalised guidelines to determine the admissibility of proposals for merger of sick industrial units with the more viable ones. The amalgamating company should be one with at least 100 workers or Rs. 50 lakhs fixed assets unless it is engaged in producing high priority mass consumption goods or is located in a rural or backward areas as designed in the Income Tax Act. The company taking over should have the needed financial and manegerial resources, possessing special knowledge or skill in the production of the goods in question or if the industry has been, in general, suffering from widespread sickness or if the merger would be overwhelmingly in the public interest. Also in January, the government with a view to fixing production capacities of large and small units has notified 38 groups of industries that within 3 months their productive capacities should be endorsed within their registration certificates. While applying for endorsement, each undertaking will have to furnish full particulars during the 3 years before August 29, 1973 and the exports recorded during the period. The Chem-Tech. 78 exhibition in January was a good demonstration of the achievements and innovations of the chemical and chemical engineering industry. There was emphasis on the need for industry to ensure protection of the environment and workers from pollution, involving greater attention to the disposal of industrial wastes, the use of agricultural crops such as oil seeds, hides and skins and bamboo as feed-stock for several cottage and small scale chemical industries for which appropriate technologies could be developed. Chemical technology will play an increasing role in providing cheaper fertilisers, pesticides, drugs and pharmaceuticals, and though in some areas is capital intensive as in petro chemicals, some of its downstream products such as plastics, manmade fibre and basic chemicals are employment intensive. On the performance of the public sector, 17 units under the Department of heavy industry would be producing Rs. 1,000 crores in 1977-78, yielding a growth rate of 10 per cent. BHEL production will be Rs. 570 crores, Rs. 85 crores will be invested for modernisation and Rs. 11 crores on R and D.

National Production Front:

Steel :

In 1977, SAIL reports that the main steel plants produced a record 8.575 million tonnes of ingot steel, being an increase of 4.4 per cent over 1976. Bhilai, Rourkela, Durgapur and Bokaro produced 5.97 million tonnes, being a 6 per cent increase. Saleable steel production was 7 million tonnes, the five plants registering a 5.2 per cent increase and TISCO 3 per cent, IISCO a shortfall of 1.3 per cent. Rourkela produced in 1977 11.74 lakh tonnes, its open hearth furnaces and plate mill making a record production. Its capacity use was 101 per cent. Total sales from SAIL plants

were 5.226 million tonnes against 1976 sales of 4.208 million tonnes, with domestic sales increasing from 3.445 million tonnes to 4.441 million tonnes and exports increasing by 3 per cent. Due to increased domestic sales, on January 1, 1978 stocks stood at 1 million tonnes compared to 1.42 million tonnes in January 1977. Bhilai produced 2.37 million tonnes of ingot steel and 1.962 million tonnes of saleables, with a 99.9 per cent capacity use. About 8.28 lakh tonnes of pig iron and 19.58 lakh tonnes of saleable steel were despatched during the year. During the first nine months of 1977-78, there has been some decline in saleable steel production at 51.41 lakh tonnes against the target of 54.54 lakh tonnes. In December the production was 6.20 lakh tonnes by Bhilai, Bokaro, Rourkela, Durgapur, IISCO and TISCO against the target of 6.54 lakh tonnes. For the 9 month period, ingot production target was 68.86 lakh tonnes and actual production was 63.16 lakh tones, due mainly to power shortage. Domestic sales increased to 3.25 million tonnes against the previous year's nine months sales of 2.66 million tonnes. Average monthly sales were 3.60 lakh tonnes, an increase of 37,000 tonnes, with increased sales of rerollables, structurals, plates, CR sheets and heavy rounds. The total reduction in steel stocks has been 3.41 lakh tonnes, with sales in the 9 months going up to 2.505 million tonnes compared to the previous year's 9 months sales of 2.114 million tonnes. The need for improved stockyard sale practices is being emphasised by consumers. In regard to clubbing profitable items with non-profitable ones., price difference between ex works and ex stock yard and the sales tax. For 1978-79 the government has fixed the production target at 10 million tonnes and to ensure this has decided to import coking coal with low ash content in place of the domestic coking coal with a 23 to 28 per cent ash content against the agreed norm of 17 per cent. The increase of 1.3 million tonnes in production for the coming year depends on uninterrupted power supply and the use of coking coal with low ash content. The government has asked the steel plants to reduce costs through less use of furnace oil and naphtha and reduction in use of ingot moulds, improving the linking of LU convertors, reduction of coke consumption and improving the efficiency of blast furnaces.

Crude:

In January, Bombay High produced 80,125 barrels a day and will be achieving its target of 4 million tonnes this year, two months ahead of schedule. The submarine line from Bombay and Bassein offshore oil fields has been completed for 40 km from the offshore terminal and by May the whole 210 km will be completed. The construction of the first offshore platform by Mazagon Dock was inaugurated in January and this should lead to the development of skills to build equipment, platforms, modules, marine craft like supply vessels, crew boats and maintenance boats needed for oil and gas production within the country. The final talks on the takeover of the remaining 50 per cent shares of OIL India were held in January, with the agreement on the disputed dividend question fixed now at 11 per cent for 1975-76. Once OIL India is taken over, it will become the second public sector organisation engaged in oil exploration in the country. It has been asked to undertake oil exploration for the Mahanadi delta covering 12,000 sq. km. offshore and 6,800 sq. km. onshore.

The government is negotiating an oil agreement with Iran for supply of $ 186 million worth of oil as a five year loan at low 2.5 per cent interest. The 2 million tonnes of Iranian light will be supplied in 1978. With its supply of 2.9 million tonnes this year to the Madras Refinery, Iran is the largest (10 million tonnes) crude oil supplier to India. In return India will supply sugar and cement to Iran. The government has decided to buy 30,000 tonnes of kerosene from the Gulf countries, which is additional to the import of 1.3 million tonnes from USSR and the domestic production of kerosene of 8.5 million tonnes, in order to meet the sharp increase in kerosene demand and counter the transport bottleneck faced in the movement of the product to areas which face shortages. On a perspective basis, the govarnment has set up an inter—departmental committee to study the problem of conserving indigenous crude reserves in light of the prospective rise in international oil prices. As of now AOC produces 60,000 tonnes per annum from Digboi oil fields, OIL produces 3 million tonnes from Assam and Arunachal Pradesh oil fields, ONGC produces 4.2 million tonnes per annum onshore in Gujarat and 1.42 million tonnes from Assam, which is to be raised to 2.25 million tonnes from the next financial year and from Bombay High 4 million tonnes going upto 10 million tonnes in 1980-81. On this basis domestic production is planned at 21 million tonnes from 1980-81 when the demand will be 35 million tonnes. At present, the country is spending Rs. 1,500 crores (this year) for crude imports and if the future oil price rises to $ 20 per barrel, the foreign exchange outflow would be doubled. It is at this point that the question arises whether the crude reserves of the country should be conserved against such a price rise in the future and the large foreign exchange reserves used to import a larger amount. Against this is the fact that over Rs. 800 crores have already been invested in Bombay High and Bassein and it would not be wise to waste this investment. It is to analyse these issues that the committee has been set up and a policy recommendation from it requested.

Coal :

Coal production and demand present complex contrasts. The Planning Commission has drastically reduced the production target from 135 million tonnes 1977-78 to 113 million tonnes for 1978-79, in order to match supply to demand estimated at 113 million tonnes. The production for 1977-78 is estimated at 100 million tonnes. Rs. 287 crores have been provided for 1978-79 involving the initial investment on the extension work on the lignite coal mining complex at Korba estimated to cost Rs. 400 crores as well as some 60 new mining projects which will produce 2.5 million tonnes. The decision not to include other new projects with longer gestation periods is in part an extension of the rolling plan concept, and in part due to the estimate that by re-organisation and improved efficiency some 700 to 800 lakhs tonnes could be produced additionally. Extension activities from the existing mines could produce a further 3.5 billion tonnes. The Bharat Cooking Coal Limited in collaboration with Polish experts is aiming at producing 3,000 tonnes a day by 1981 and 5,000 tonnes by 1983. The mine site is now seen to present certain adverse geological conditions and in this Soviet experts are to be consulted and Indian experts trained in similar conditions in the Soviet Union. On the other

hand there are widespread reports of coal shortage. The usual tussle between the railway and Coal India over the number of rakes for moving coal being reduced on the one hand but the reduction ascribed to reduced production has started. CIL's pithead stocks have fallen to 8.43 million tonnes in December on the other, and have only marginally improved to 8.63 million tonnes in January. Chemicals plants and textile mills report that their coal stocks have been reduced to 2 days' consumption. Fertiliser factories also report the same situation. In this situation the railway and power ministers must reach immediate agreement on the present transport problems and CIL should intensify and improve its production profile. On top of this, the ministry report that CIL will close 1977-78 with a loss of Rs. 78 crores and a cumulative 3 year loss of Rs. 150 crores. The government having decided not to increase coal prices, has appointed a committee headed by the Director General of the Bureau of Public Enterprises to examine the industry's costs structure and recommend economies. But some raising of coal prices is inescapable and this must be faced. The last increases were in 1974 at Rs. 10 per tonne and 1975 at Rs. 17.50 per tonne against the Rs. 21.80 per tonne recommended by the Sukhomoy Chakravarty Committee.

Aluminium and Copper :

BALCO increased its production by 15.8 per cent in 1977 at 28,381 tonnes, compared to 24,494 tonnes in 1976. The expansion of the BALCO smelter at Korba and its further expansion is proceeding rapidly. The second potline of 2,000 tonnes for annum was commissioned in September 1977 and the third is expected to be commissioned soon. Because of power shortage, the industry is working at 60 per cent capacity, with overall production of aluminium metal falling from 2,10,763 tonnes in 1976 to 1,82,378 tonnes in 1977. Hence, imports of aluminium continued at around 20,000 tonnes in 1977. In this connection, the large deposits of bauxite in eastern India (in the country the deposits are computed at 2 billion tonnes) when fully exploited could help develop large alumina and aluminium complexes which could transform the non-ferrous metal production prospects of the country. The production of copper wire bars in December 1977 was 1,988 tonnes and for the period April-December 1977 was 14,118 tonnes. The ore mining and blister copper production at the Khetri complex was good in December compared to 1,25,308 tonnes of ore in January 1977 and 1,358 tonnes of blister copper in February 1976.

Small Sector :

The January meeting of Chairmen of State Boards of Khadi and Village industries recommended 10 more industries involving an investment of Rs. 10,000/- stone quarrying, cattle and poultry feed, cashew nut proceesing, salt, dry fish be included in the reserved list of the small sector. It also suggested guarantees from State government to cover the commission loans and the earmarking of 5 per cent of total bank credit to Khadi and Village Industries. It has requested exemption of its industries from purchase tax, sales tax, state and central income tax, excise duty etc. A study group of the Planning Commission has suggested several new incentives to develop village and small industries—an investment-cum-employment subsidy, differential interest rates, minimum monetary support and income tax holiday.

Sugar and Cement :

Sugar output will cross 58 lakh tonnes in 1978 because of the favourable rains and the bumper cane crop. India is the largest producer of sugarcane (143 million tonnes from 2.8 million hectares), but is at the bottom in terms of cane and sugar output per unit area. Against the yield in prize crops of 400 tonnes per hectare, the national average is 50 tonnes per hectare. Not that research is lacking. The Coimbatore State Cane Breeding Station has done excellent work and its varieties are in use in 22 countries. The problem is that the techniques have not reached the field. With 277 factories now functioning and 57 more to come up, as well as with the prospect of the export quota being reduced by 15 per cent as part of the general agreement, there is need to improve cane production in the country. In fact from January, the new international sugar agreement aimed at stabilising the free market price of sugar, has come into being. Sugar prices are likely to be stabilised at 11-21 cents per pound. We will have to produce to compete at this price. On the cement front, the government has appointed a committee to study the cost structure, returns to investment and distribution of cement industry. The government is also planning to announce a cement policy. To counter cement shortage, and the rise in cement prices, the government is importing cement. With arrival of cement imports at January end, the prices which ranged between Rs. 5-15 per bag in Bombay, Cochin, Madras, Vizag have begun declining and the black market operations curbed. 8.7 lakh tonnes of imports have been continued from Romania, Poland and South Korea. The price has increased from Rs. 236.5 per tonne to Rs. 248.6 and at retail prices the increase is Rs. 20 per tonne. The government has withdrawn concessional policy for government departments to effect savings in cement regulation account which subsidised the cement imports. The imports supplements 1977 record domestic production of 19 million tonnes. The imports have positive effect on curbing anti-social black market action.

Jute and Tractors :

To help the jute industry, the Union government in January reduced the maximum raw jute stocks to be held by any jute will from their 8 week consumption level to 6 weeks, along with the obligation to disclose raw jute stocks within 2 weeks of the notification on January 19. The jute mills will also have to submit weekly returns regarding their raw jute stocks and their purchases of raw jute to the jute commissioner. This package of dehoarding operations is part of a plan for the rational distribution of raw jute among the mills and is precursor to a long term jute policy in which the Jute Corporation of India will have a key role. The tractor industry is increasing its output. In December 1972 its output was up by 54 per cent over December 1976, at 3,992 tractors compared to 2,599 tractors in December 1976. During the 9 month period, April-December 1977, the production increase was 6 per cent, with a total production of 28,000 tractors. For the year 1976-78 there is likely to be a record production in the tractor field.

Shipping and Fisheries:

India placed orders for 13 ships of 2,11,000 GRT, making for a total of 30 new ships on order from Japan, Poland, Yugoslavia, GDR, Sweden and West Germany of 5.45 lakh GRT. Being

mostly bulk carriers and liners, the 24 ships of 4.54 lakh GRT are for public sector shipping companies. In addition, 12 ships of 2.64 lakh GRT are under construction in Indian shipyards at Vizag, Cochin and Calcutta. Out of Rs. 500 crores allocated for purchase of ships abroad, Rs. 181 crores have been utilised. As at January 1978 the Indian merchant navy consisted of 371 ships with a tonnage of 5.35 million GRT. The Planning Commission's working group on fisheries has formulated a massive Rs. 1,000 crore integrated plan to exploit the resources of the country's 200 mile offshore economic zone and developing inland waters. This will double fish production, generate employment for 10 lakh people and involve heavy investments by both public and private sectors in purchase of fishing vessels and developing fishing harbours.

FCI:

The Fertiliser Corporation of India will in the first instance be split into 3 new companies, with the existing units of FCI being leased out to trainees and later tranferred. A recruitment board for the selection of trainees and their subsequent allocation to the different companies of the re-organised FCI will be constituted and headed by a Chairman. The board will consist of the Chairmen of the 5 newly constituted units. An inter company committee will safeguard promotions of officers. The re-organised companies will each have a marketing division formed fromt the existing markeing set up of FCI. The new companies will consist of National Fertilisers, West Coast Fertilisers and the residual FCI and the Planning and Development Division of FCI, which will be organised into a separate engineering and consultancy unit to assist all the other four units. This reorganisation which has been on the anvil for over 6 months is justified because FCI had become too large for efficient and economic management. It is important that the 4 companies work together and that at the policy level there is unity and coherence.

Agricultural Production:

The Union ministry of agriculture estimates that the kharif grain output in 1977-78 may be 4-5 million tonnes more than the 1976-77 output of 68 million tonnes, despite the damage caused by the cyclones in the South. Paddy output in Punjab is estimated at 3.4 million tonnes against the previous year's 2.2 million tonnes. In Haryana the output was 3 lakh tonnes higher, in Tamil Nadu, despite the monsoon damage, a higher yield is reported. It is also expected that due to bringing large areas under pulses along with the use of fertilisers, rabi pulses production will be higher. The Union government has sanctioned an additional sum of Rs. 52 lakhs to the States for increased pulses production, for the purchase of plant protection equipment, supply of rhizobial culture, seed multiplication and improved package of practices To increase production of rabi pulses-gram, lentil and peas-states are to take advance measures for detection of pests and diseases. Total food grain stocks with public agencies which earlier was 21 million tonnes (see Vol VIII p 633), in January stood at 17.5 million tonnes, mainly due to increased public offtake which will continue till April when the rabi harvest will come on to the market. The government announced that in January, the buffer stock will be 12 million tonnes to act as a cushion against bad crop years. Initially the

buffer stocks would be kept at 10 million tonnes to be increased to 12 million tonnes as and when the storage position improved. In addition, an operational stock ranging between 3.5 million tonnes and 8.5 million tonnes will also be maintained. All these are in accordance with the recommendations of the Juneja Committee. FCI stocks in January comprise 9.9 million tonnes of wheat, 4.5 million tonnes of rice, and 30,000 tonnes to coarse grains, totalling 14.5 million tonnes in addition 3 million tonnes are held by State government. An application of the buffer stock decision is that government will import foodgrains when the buffer stock falls below a certain level. It also implies a commitment to build storage capacity for 18 million tonnes against the current storage capacity of 12.4 million tonnes. In January the government sold 50,000 tonnes of rice to Indonesia. similar to the earlier sale of wheat flour to Vietnam. Iran is also being considered for wheat export. The government reports that about 60,000 hectares which had been lying fallow are now under cultivation. During the kharif season, 12,500 hectares of alkaline land was reclaimed and 20,000 hectares of acidic soil was treated. The low interest rates–10.5 to 11 per cent on 3 year term loans are now under RBI directives available to farmers for minor irrigation, land development, dairy farming, poultry, fishery and horticulture. To increase minor irrigation and bring and additional 9 million hectares under it in the next five years, the government is extending the present subsidy scheme to cover small and marginal farmers in all areas. Public tube-wells are to be given more emphasis in small farm areas. An outlay of Rs. 250 crores in 1978–79 is being planned for minor irrigation. The cotton producing States are requesting that long staple cotton should not be imported in order to increase domestic production and to avoid depressing prices. Most States have also asked for a further cut in fertiliser prices as also in those of pesticides. This will require a careful study of the costs of production of these chemicals. The World Bank in a report in January notes that India's population may have passed its peak in 1960 and urges that all efforts be concentrated on raising the growth trend of agriculture and the economy generally. Though with a low per capita income, it points out that India has the tenth largest GNP and is the fourth biggest grain producer in the world. These advantages should be further capitalised.

Exports:

The trend of the surplus of exports over imports continues. For the first 8 months of the financial year 1977–78, April–November, exports increased by 9.3 per cent and imports by 3.8 per cent. During this period exports earned Rs. 3,472.41 crores, while the import bill was Rs. 3,400.11 crores, giving a trade surplus of Rs. 72.30 crores. The 9.3 per cent increase in exports growth was less than that for the first 8 months of 1976–77, but was impressive in terms of the world rate of 4 per cent and the government's various restrictive policies such as reducing or banning export of mass consumption goods, like tea, vegetables etc., the protectionist policies of the developed countries and recessioary conditions which characterised some of the major export markets of India. The good export performers were tea, coffee, spices, engineering goods, cashew kernels, gems and jewellery, tobacco, handicrafts, jute goods, cotton textiles

and chemical and allied products. The exports which have shown a decline due to recessionary conditions abroad or protectionist policies are handloom textiles, iron and steel, iron-ore and leather. Engineering exports are looking up and the industry expects to reach the year's target if there are not serious interruptions caused by power shortage or industrial unrest. In this connection, the January decision of the government to bring all engineering products within the Quality Control and Inspection Act of 1963 in the next 3 years will have a beneficial effect on engineering exports. In 1978, textile exports are likely to expand with the conclusion of the agreement with USA to export to it 186 million sq yards which represents an increase of 7 per cent over that of 1977. Similarly the agreement with EEC for exporting 53 million pieces of blouses and shirts of all types including handlooms, which though a lower growth rate, is a 6 per cent increase over the 1976 exports. Lobster and shrimp exports to Japan will benefit from the tariff cuts being implemented by Japan from April 1 on goods worth $ 1.9 billion. On the side of imports STC will be importing 1,500 tonnes of polyester filament yarn to be distributed to actual users by the end of March. As noted earlier, 1.85 lakh tonnes of edible oils will be imported between January and March and cement and coking coal are also being imported. Another small negative element is that in engineering exports, though the current exports are satisfactory, the diminishing flow of fresh orders indicate a slowdown in exports during 1978-79. The continued revaluation of the Rupee against the US dollar is to some extent adversely affecting exports; exporters who were getting Rs. 9.25 to a dollar in 1977 are now receiving Rs. 8 and a request from exporters to introduce a dual exchange rate, one for exports and the other for imports or a 50 per cent reduction in the 8 per cent difference between buying and selling rates has been made. This is rather an alarmist short term view which needs to be examined against long term trends. Further the need to develop an adverse trade balance by increasing capital goods and raw material buffer stock imports in order to turn the fast growing foreign exchange reserves into an investment resource must not be lost sight of.

Aid :

In January India signed an agreement with Belgium under which India was granted a 10 year interest free loan with a 10 year grace period of $ 11.7 million. Also India and UK signed an agreement under which India will receive grants, totalling Rs. 228 crores ($ 144 millions) of which the largest will be for import of maintenance goods from UK, including agricultural inputs, raw materials, spares components and commodities. Also in January, IDA agreed to provide a loan of $ 2.8 million for setting up 9 new crumb rubber factories in Kerala with a capacity of 10 tonnes per day each. The loan is part of an agreement for financing the rubber processing companies of the Kerala Agricultural Development Project. The World Bank also announced in January, a loan of $ 25 million through IDBI for financing industrial sector investment, studies, strengthening various industrial finance institutions in the State and promoting projects in the less developed states. Among offers of aid, the World Bank has renewed its 1976 offer to finance the development of small scale, cottage and rural industries and with

renewed emphasis on the small sector this offer may lead in 1978-79 to an agreement on aid. Similarly there is an offer of $ 60 million from the US to aid malaria eradication, irrigation and alternate energy resources projects. UNIDO has approved $ 10 million aid for research and development in solar energy for industrial and commercial uses. FAO has offered assistance for a long term land and water development project in the context of the garland canal project developed by Dastur (see Vol VII p 585). FAO's view is that the transfer system from the water rich western states to the eastern and northern drought prone areas could be developed independently of the other major function of the garland canal of receiving and distributing surplus water from the Himalayas. The engineering problems in this are less complex and there is already a basis for such a scheme in the Periyar system in Kerala and the reservoirs in Tamil Nadu, thus offering the possibility of integrating existing schemes with the new plans.

International :

Bangla Desh :

The Indo-Bangla Desh Joint River Commission upgraded to the ministerial level met in Dacca in January and agreed on the broad procedure to be followed within a time frame for studying alternative schemes proposed by either side for augmenting the flow of the Ganga during the dry seasons. The next meeting of the Commission in April in Delhi will commence with a review of the feasibility studies of the alternative schemes which the two governments will submit by the middle of March. They identified 11 schemes for further investigation by joint teams and agreed to expedite consideration of flood control problems of Sylhet, Cachar and adjoining areas.

World Monetary Reform :

In late December and January, the US dollar was under continued pressure. In Zurich the selling pressure led to the dollar losing 4 per cent of its value against the Swiss Franc in a single day, and the US government which in 1977 refused to intervene on the grounds that money markets are equipped better than governments to determine the dollar's true value, began buying dollars, starting with $ 2 billion worth of marks as a result of an exchange agreement with West Germany, followed by other such deals. After an initial rise, the dollar began falling again in January. At bottom is the massive trade deficit of the US for which it has been urging West Germany and Japan to increase their imports from the US, and the problem of oil deficit of the US which by 1985 will amount to $ 550 billion. The IMF continuing its gold sales programme auctioned half a million ounces in January at a price of $ 171.26 an ounce. $ 67 million which were the proceeds from the sale were paid into the Trust Fund which now totals $ 1.03 billion. As a first application, IMF agreed in January to the use of its buffer stock financing facility to finance special stocks of sugar being established under the 1977 International Sugar Agreement. The Agreement which came into effect in January 1978 provides for joint operation of export quotas and a buffer stock arrangement involving stocks nationally owned but internationally controlled as a means of stabilising sugar prices. IMF assistance for the setting up of sugar stocks by its members will not exceed the value of the stocks computed at the agreed floor price of 11 cents a pound

(for 1977) and is complementary to the loans that will be given by the International Sugar Organisation for recurrent cost of storage. Drawing from IMF for buffer stock financing can be upto 50 per cent of a member's quota and when the member has a balance of payments need to draw. So far the Fund's financing facility set up in 1969 has been used only to fund the International Tin Agreement for which 14 drawings have been made by 5 countries to the extent of SDR 30 million.

International Sugar Agreement :

As noted above the new International Sugar Agreement came into effect on January 1, 1978, on the ratification by the requisite number of sugar importing and exporting countries. For the first time, the US which is the world's largest sugar importer is a member of the Agreement. India is one of the 53 countries which have signed the Agreement which aims at stabilising international sugar prices between 11 cents to 21 US cents (from Rs. 1 to 2). The stabilisation will be achieved through a system of export quotas and reserve stock arrangements. And it is to finance this agreement negotiated by UNCTAD, that the IMF facility will be available.

Help to Insurance :

UNCTAD has proposed a plan approved by its Committee on Investment Financing to help the insurance companies in developing countries. The Plan makes it easier for insurance in developing countries to participate in the insurance of large industrial risks such as fire in refineries, engineering and oil rigs. UNCTAD has been asked by its committee to extend its studies so that developing countries can also participate in insuring against marine and aviation catastrophes and pollution. The next step is for UNCTAD to help developing countries set up their insurance industry by organising meetings at which managers of regional insurance pools in these countries will exchange experiences and help each other. It has also highlighted the potential role of co-operative insurance in developing countries in making insurance services available to larger population groups than through those reached by traditional methods.

International Jute Agreements :

The first meeting of producers and importers of jute called by UNCTAD met in Geneva in January and agreed on the broad strategy for stabilising jute prices. Jute is one of the export commodities from the Third World included in an UNCTAD integrated programme for stabilising world prices and supplies through internationally co-ordinated measures. India and Bangla Desh are the leading producing members in this meeting which also includes the US and the 9 nation EEC who are the top consumers. A second session is to be held from February 27 to March 3 at which the progress made at this meeting could lead to an outline international agreement.

GATT :

The final negotiating phase of the 97 nation Tokyo round opened at Geneva at the end of January with the warning issued by a GATT study on the dangers of growing protectionism spreading among developed countries, which exploit and foster a misconception of society's internal and external interests

which are not really in conflict. The kind of ratios of foreign trade to domestic trade commonly used, hide the fact that there is very substantial room for growth of foreign trade to the mutual advantage of the trading countries. Trade liberalisation is one means of fighting inflation, instability and increasing unemployment. To think that only a more vigorously growing economy will promote free trade is to confuse what is the consequence with the cause. Nearly 2/3 of trade expansion in manufactures between 1955 and 1973 is accounted for by expansion of trade with Europe, North America and Japan. But trade between Western Europe, North America and Japan accounted for less than 25 per cent of the total increase, and the imports from developing countries by 11 per cent. There is thus considerable potential for greater specialisation between the 3 major industrial areas and between them and the rest of the world. Against this background, at the final GATT negotiations phase, US, EEC and Japan proposed to complete the trade talks by summer and to defend their post war free trade system against the increasing demand for protection. They proposed that tariffs on industrial goods be reduced by 40 per cent over eight years and pledged to negotiate earnestly and sincerely on liberalising agricultural trade, removing other trade barriers and enlarging the share in their markets of the developing countries' exports.

World Debt :

UNCTAD points out that international loan agreements were established 10 to 15 years ago (before the oil crisis) and are thus significantly harder in terms than considered appropriate today. Taking the world's poorest 29 countries, if their outstanding debts to the rich countries were written off, and if the proportion of grants to the 16 most needy states were increased , $ 600 million a year would be saved in debt payments. In addition therefore to reaching agreement at the conference in January called by UNCTAD on rescheduling and renegotiating debts, there is also need, it is pointed out, to improve the developing countries, access to commercial bond markets and for setting up a new multilateral loan scheme, as development projects needed long term finance while private capital markets provided short term or medium term loans only.

World Cotton and Copper :

World cotton stocks in 1978 will be large because the cotton drops will go up to 14.5 million bales compared to last year's 10.5 million bales. On copper, production is expected to be stabilised, with Chile the largest producer producing 1 million tonnes. Copper stocks have however declined from 5,45,900 tonnes in October to 5,21,900 tonnes in November 1978.

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II Agricultural Development

Paddy and other Farm Production:

In order to promote paddy production and ensure that farmers received remunerative prices in the open market, the State directed the State Civil *Supplies Corporation to purchase from* February 1, directly from the producers coarse grain paddy at Rs. 90 per quintal and medium variety at Rs. 95 per quintal during the samba season. The procurement price of Rs. 77 per quintal for coarse paddy and Rs. 81 per quintal of medium variety paddy will continue to obtain with *regard to millers'* levy which is 20 per cent of their stock, and traders' levy which is 10 per cent in rice and 20 per cent in paddy. *The traders' levy is applicable in* the surplus districts of Thanjavur, North *Arcot, South Arcot,* and Chingleput. The open market price is higher than the procurement price in all districts and so the price to be paid to the farmer when paddy is purchased from him directly (which is Rs. 13 and Rs. 14 per quintal higher than the miller/trader levy price) will enable him to obtain the more remunerative price. It is estimated that the *Civil Supplies Corporation will be able* to buy 2 lakh tonnes of rice directly from the farmers at the *increased* prices. *In* addition, the government expects to *procure* 2 lakh tonnes from the miller/ trader levy and with a matching allotment of another 2 lakh tonnes from the Union government to hold a buffer stock of 6 lakh tonnes. It has purchased 1.32 lakh tonnes of rice and paddy from Punjab, Haryana and Madhya Pradesh at Rs. 77 per quintal which with transport charges amounts to Rs. 90 per quintal. With this stock, the government will be able to run the public distribution system for a year. *Groundnut production in the State* is registering a bumper crop as a result of the massive nuclear seed *production in* six centres in the country which has *yielded 13 tonnes of 100 varieties of* seeds. Productivity has crossed the one tonne mark in Tamil Nadu against the national figure of seven quintals per hectare. The evolution of the TNU 10 variety of groundnut in this state with its 55 per cent of oil content is a major achievement. Similarly thin flower safflower variety adds to the oil seeds crop for the year. Outside of Tamil Nadu, *in Andhra Pradesh, Gujarat and Maharashtra castor has shown a 100 cent* increase in productivity as have rape seed *and mustard which have also registered* a doubling of their yield and productivity. A relatively new crop in the State is the cultivation of cocoa in lower Pazhani and Sirumalai which have the temperature and climate that it needs. When the bunchy crop disease of the hill banana forced the growers to look for an alternative crop to bananas, the hill area horticultural development scheme distributed 40,000 good quality cocoa *seedlings during the planting season of* June-November 1977 and in 1978 it is estimated that the demand will be for 1 million seedlings. Now to help the small and marginal farmers growing the crop in the area, centres for curing and drying cocoa and processing the marketing the beans are being developed.

Agracian Reform and Investment:

The progress of Agrarian reform in the State presents a somewhat confused picture. According to the government in the 20 years between 1947 and 1967

2.88 lakh acres were assigned to landless poor in the State. From 1967 to 1975 7 lakh acres were assigned to 3.6 lakh persons. In 1976 11,188 acres were notified and assigned to 8,976 persons. The landless poor number 28 lakhs and the majority of the 4 lakh among them have been assigned *Poramboke* land. One Board of Revenue official reports that a little over 1 lakh acres were notified as surplus land and less than 80,000 acres have been assigned to about 50,000 landless poor since 1961. 50 per cent of the lands were assigned to erstwhile tenants and a sizeable portion went to those who had encroached upon them. A study of IADB tenancies in Thanjavur district classifies the ownership and tenancies into owner-cultivator, owner-cum-tenant cultivator, the tenant-cultivator, the agent, the absentee landlord and the temples, mutts and charity lands which have their own pattern of tenancy. The study shows that farm efficiency is higher in the owner operated farms than in owner-tenant or tenant-operated farms and suggests that in tenant operated farms land improvement programmes like tapping of underground water sources be undertaken. Also agro based industries should be established to use labour which is idle during the off season. The study calls for rationalising of the lease rates and rent structure and undertaking spot investigation of *benemi* tenancies and transfer of them to genuine landless cultivators. In an analysis of agriculture, poverty and unemployment, the Deputy Chairman of the Planning Commission on the basis of detailed information for 60 socio-economic regions of the country shows a very loose relation between employment and poverty. While those in poverty range from 42.7 to 59.5 per cent of the population, those unemployed including the underemployed amount to 7.83 to 8.85 per cent of the population. In many of the regions where agricultural productivity and consumption levels are low, the unemployment rates including disguised unemployment are not severe. What is needed is the transformation of the economy and not simply generating more employment—the deployment of resources at a higher level and the use of such resources to upgrade the production capabilities of those who had been left out of economic development. There is need to couple increase in irrigation with new technology and higher cropping intensities and for orienting investment and agricultural extension strategies to those low producing areas.

Research Results :

In January, 16 new varieties of cereals, millets, pulses and oil seeds were released in the State. A short duration 110 day's paddy, TKMG, from the Paddy Experimental Station at Tirukuppam was released to suit the kar, kuruvai and sornavari seasons. Another paddy variety ADT-32 which matures in a short (107 days) period during kuruvai and a little later (125 days) in thaladi yields about 5 tonnes per hectare, is bacteria resistant and is a white grained scented variety. The cotton and millet experimental station in Koilpatti has brought out 7 varieties in millets—cholam K-6 for summer irrigated crop of 90 days duration and yielding 2.5 tonnes per hectare, ragi K-5 yielding 4 tonnes of grain in irrigated and dry areas, ragi K-6 with 75 to 80 day duration, drought resesting, yielding 3.5 tonnes in both dry and irrigated lands, maize K-1 maturing in 85 days, yielding 3 tonnes, which can be grown in Thanjavur and Pudukottai in both dry and irrigated farms. Cotton K-9 with a 150 day

duration and a yield of 5 to 6 quintals per *hectare is suited to black soils.* The Oil Seed Experimental Station, Tindivanam, has released TMV-12 groundnut of 105 days' duration yielding 2,000 kg. per hectare under irrigated and 1,250 kg. under dry farming, and gingelly TMV-5 with 80-85 days' maturity in both *dry and wet areas.* The Kudumiamalai Experimental Station has specialised in pulses and has contributed blackgram KM-2 and a low priced variety KM-2, which can be grown in both dry and wet areas, with a duration of 60-65 days. With the original seed from Coimbatore, the Sugarcane Research Station at Anakapalle reports an early maturing sugar cane variety COA 7601. With a *duration of 6 months, the cane crops can* be grown either as two planted crops or as one planted crop and one ratoon crop. The Sugarcane Breeding Station at *Coimbatore* develops the seeds and sends them upto 40 types to different centres. The result has been a steady increase in the per hectare *yield now amounting to* 20 per cent, *and* this is important break through involving 2 crops a year. On cattle fodder, the *Indian Grass* Land and Fodder Research Institute at Jhansi has shown that *Koobabool* is a *prolific* leguminous fodder yielder, that it can yield 33,345 kg. per *hectare at 120 days'* interval. Studies on this fodder tree at the Institute show that the roughage for cattle using wheat or paddy straw and *grasses can be well enriched by adding* 25 per cent of this foliage. Alongside grass can be grown for cattle to feed on as both grass and legume. Research on improvement of soils and correction of their many lacks and defects under the All India Co-ordinated Project on *Improvement of Soil Physical Conditions* are beginning to yield results in LR-18 paddy in permeable soils treated for compaction and in sonali wheat or hybrid *bajra in brown* sandy soil also treated for compaction. The yield increases from 20-30 *per* cent. Treating loamy soils *with wheat straw similarly* increases the yield of *bajra and* cluster beans. Also the research results include the means of *recycling agricultural* wastes to correct soil defects, such as using wheat straw which improves the clay soil *to* increase maize yields by 40 to 60 per cent, or *neem cake on sandy loams for bajra and* rice crops yield increases. Research at the Central Mango Research Station, Lucknow on mango pests has shown that pesticides which must be used in January, the flowering month for mango trees and orchards to control the pests. Also *wrapping an alkaline band around* the trunk is recommended. An inter-disciplinary project has been launched to deal with the serious problem of malformation and to correct this the first findings show the fungicides, pesticides and other growth regulators which must be used to *correct such malformation which is more* widespread (80 per cent) among young plants than is realised.

Dairy Farming:

The question of the Tamil Nadu Dairy *Development Corporation raising* the price of milk from the present level of Rs. 1.05 per half litre referred to in an earlier issue (vol. VIII p 20) is related to (a) the question of covering the Rs. 2 crores annual loss suffered by the Corporation and (b) the need to replace the skimmed milk powder supplied by the world food programme which ended in December 1977 by the powder manufactured at the TNDDC Madurai plant. This question of the price rise is being reconsidered by the government. While this review is under way, some other

questions should also be examined. First why was the skimmed milk powder supplied by WFP which was to used to make up a deficit used by TNDDC to stop the expansion of fresh milk? If this had not been done, the milk supply from the dairy farmers would now be 3 lakh litres and could have gone upto 5 lakh litres in the next 2 years, instead of being 2.2 lakh litres. Second why is this policy of making costly skimmed milk powder with milk being persisted in? WFP supplied skimmed milk powder at Rs. 6,000 to Rs. 6,500 per tonne. The milk powder from the Madurai plant will cost Rs. 12,500 per tonne. Third why is not TNDDC allowing milk co-operatives to develop freely without any government control or intervention? Why is the remarakable Erode Co-operative Milk Supply Union which has developed freely and which using the Anand model frame has grown from 2,000 litres to 10,000 litres a day being interfered with by TNDDC and why has the Erode feeder balancing dairy being turned over to the Erode Union been delayed so that the Erode complex instead of coming up this year is coming up in 1981? One suggestion is that TNDDC might be transformed into a non-operational advisory organ, with milk co-operatives being allowed to develop and expand on their own, under the general guidance of the Registrar of Co-operative Societies.

Poultry Farming :

A poultry scheme sponsored by the Union government and operated by the Tamil Nadu Poultry Development Corporation with financial aid from the Syndicate Bank was launched in January at Tirumaram in Poonamallee Union as part of a 4 district scheme—Chingleput, North Arcot, Salem and Madurai. Each poultry unit consists of 100 layers with a capital investment of about Rs. 4,577. The Union government provides a subsidy of 25 per cent capital cost to a small farmer and 33⅓ per cent to marginal farmer and farm labourers, with the residual amount being provided by a bank, —in this case the Syndicate bank. The latter is funding 20 poultry schemes as a start on the basis of the response that the scheme is evoking from underemployed small farmers and landless labourers.

Tea :

The 1977 production of tea is estimated at 590 million kg. up by 20 million kg. over the estimate reported in the last issue (Vol VIII p. 87,) and by 78 million kg. over 1976 tea production. All other tea exporting countries are similarly registering increased output, Sri Lanka by 14 million kgs , East Africa by 27 million kg. etc., making for a total 1977 increase of 120 million kg. over 1976 This record expansion is due to (a) good weather, (b) extensive replantation, (c) increased application of fertilisers and (d) the sharp rise in tea prices. There is also some deterioration in quality due to what is known as coarse pluckings. Since July prices have been falling because of excess production the world over and stagnant domestic demand. The government has restricted exports to 225 million kg., which means that 365 million kg. will be available for domestic consumption which in 1976 was 285 million kg. and in 1977 will not exceed 300 million kg. Hence there is a case for increasing the export ceiling by 50 million kg. and reducing the Rs. 5 a kg. export duty, as India is losing the possibilities of export expansion to other countries. In fact the industry has suggested to the government restructuring the totality of taxes on tea

with a view to the tea producers generating an additional Rs. 26 crores per annum from their internal resources to achieve a minimum annual growth of 35 million kg. The Industry also wants that IDA funds should be made available for plantation rehabilitation and development and that the government should introduce a substantial development rebate to the industry for 10 years to enable it to raise internally Rs. 20 crores and resume an expanding replanting programme which covered 1,937 hectares in 1965-66 but fell to 1,220 hectares in 1974-75 and new planting which also dropped from 3,494 hectares to 1,762 hectares. The Union government has planned an annual growth of 25 million kg. to 30 million kg. in the production of tea during the Sixth Plan, and for this purpose wants to develop an area of 8,000 hectares annually, which is a doubling of the rate of growth in the Fifth Plan In non traditional areas of North East India, new plantations have been set up in Meghalaya and are in the process of being set up in Manipur, Arunachal Pradesh and Mizoram. In this connection, Kerala is the only State where the area and quantum of tea cultivation has dwindled from 39,675 hectares and 43.6 million kg. in 1965 to 36,907 hectares and 42 million kg. in 1973. This must be corrected by replanting programmes in traditional areas and some revision of taxes and opening up the non-traditional areas. For 1977-78 the export target which was fixed at Rs. 400 crores is likely to result in export earnings of Rs. 550 crores. In April to November 1977 only 150 million kg have been exported against the total for the year of 225 million kgs. For that period (April to November), tea exports earned Rs. 334 crores against Rs. 295 crores earned in the full year 1976-77. The Tamil Nadu Tea Plantation Corporation has used 1,288.12 hectares of forest land in Gudalur taluk to settle 1,200 Sri Lanka families for planting tea, mostly VP clones. By this year the targets in the Master Plan will be achieved and another 600 hectares will be taken up for tea planting before the end of March 1981.

Coffee and Cardamom:

Coffee production also has registered high levels for 1977-78. By mid November, 1,01,719 tonnes of the 1976-77 crop have been delivered to the Coffee Board. Sales for exports were 45,233 tonnes earning Rs. 130 crores, which for the year will amount to Rs 200 crores. Leaving aside 40,000 tonnes for domestic consumption, 60,000 tonnes will be available for export Cardamom exports for the year will earn Rs. 40 crores compared to the initial target of Rs. 28 crores and the 1976-77 earning of Rs. 14 crores. This means that the export earnings from these 3 plantation crops, tea, coffee and cardamon—will be Rs. 800 crores for 1977-78, being 14 per cent of our total export earnings target of Rs. 5,700 crores.

Rubber:

Rubber production is also on the increase from 1,30,143 tonnes in 1974-75 to 1,49,632 tonnes in 1976-77 and from April to September 1977, it was 71,683 tonnes. In January the government authorised the export of 5,000 tonnes making the total export for the current year 10,000 tonnes. STC is trying to achieve an export target of 15,000 tonnes by March 1978, its rubber stocks as at November 27 being 2,060 tonnes. The government also announced in January that it has under review the raising of

rubber prices to the present support price of Rs. 655 per quintal exported in March 31, 1978. This is timely as UNCTAD is working out an international agreement to stabilise world rubber prices. An inter governmental task force has recommended that the third preparatory meeting on rubber, meeting in February in Geneva should take a decision on this. Rubber prices have been volatile rising from 18.2 cents a pound in 1972 to 45.5 cents in 1973 and during 1977 it has fluctuated between 35 to 40 cents. If there is an inter-governmental agreement on rubber prices, the central element of such an agreement should be an international buffer stocking system. The price stabilisation range should be set to promote long term equilibrium within an expanding national rubber world trade.

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III Industrial Development

Salem Steel :

At the end of January, the Collaboration Agreement for the supply of technical knowhow for the Salem steel plant was signed between India and the French firm. The plant will go on stream in March 1981. The break even point for the first phase of the mills is 44 per cent and even in the first phase it will make a profit of Rs. 25 crores. In the first stage, 32,000 tonnes of stainless steel will be produced, bringing down the price from Rs. 80,000 to Rs. 40,000, enabling several subsidiary industries to become viable. Salem will get its supply of hot rolled stainless steel coil from the steel plants of the country. The infrastructure for the plant is complete. 1,545 hectares have been acquired, a township for 57,000 planned, water fór the plant is being drawn at Poolampatti on the Cauvery from which TNWDB will supply 4 million gallons a day by mid 1980 and for which Rs. 1 crore worth of cast iron pipes have been obtained. Its power requirement of 850 million units will be supplied by TNEB which is stabilising a double circuit 110 KV overhead line. An 8.6 KM broad guage line linking the plant to Salem station and a four lane 11.5 KM road connecting with National Highway 7 have been completed. The civil works and structural fabrication are being completed by HSC and by mid 1979 the infrastructure should be completed.

BHEL :

In order to meet the increasing demands for power generation equipment, the annual production capacity of BHEL Tiruchi will be stepped up from 2,500 MW to 4,000 MW it was announced in January. The company is drawing up project reports to set up satellite units which will manufacture air heaters, fans etc. BHEL is also setting up two plants at Muzzafurpur and Tennughat in Bihar.

The former plant will be 220 MW and that at Tennughat 200 MW. Also the problem of power tripping will be reviewed and means of reducing it will be established by BHEL consultants during their visit to the Bihar State.

Surgical Instruments:

The Surgical Instruments Factory of the Indian Drugs and Pharmaceuticals Limited, Madras has been advised to undertake manufacture of surgical microscope, electro-cardiograph equipment, otoscopes and audiometers which are in wide demand in the country. Against its capacity of 2.5 million instruments a year, the plant has to date found a market for only 4,00,000 instruments. The Soviet order has lapsed in 1977 due to high prices and Indian medical personnel also find that the instruments are of good quality but the price much higher than instruments produced in the private sector.

Industrial Growth and Centres:

The State has in the Fifth Plan slipped from the third most industrialised state to being the tenth. There is need for a planned programme of industrial development. In this connection the State government decision to foster rural industries, develop the co-eperative sector and promote small and cottage industries must be supplemented by opening more medium scale industrial units. Further, the all India decision to open district industrial centres in 150 to 180 district headquarters by March and will help in further spreading the industrial centres now located in Ranipet (North Arcot) and Hosur (Ramanathapuram). Each such centre provides in one place and under one roof all facilities required by the small scale sector.

Cement:

The first cement import of 20,000 tonnes arrived in Madras harbour in January. This was from South Korea with which an agreement has been signed to import 2.4 lakh tonnes. 40,000 tonnes of imported cement is to be distributed in Tamil Nadu per month from January to June mainly for use in Madras and Chingleput, the domestic production being distributed for use in the cyclone affected areas. The cement quota for the state has been increased from 3.5 lakh tonnes to 5 lakh tonnes to rehabilitate roads and buildings damaged by the cyclone. Imported cement is being made available through super markets and consumer co-operative societies, the price of both imported and domestically produced cement being the same. To increase the production of cement, the Union government has granted manufacturers 12 per cent post tax return on equity capital.

Tea Factory and Forest Based Products:

The Tamil Nadu Tea Plantation Corporation inaugurated in January its first tea factory, with a capital of Rs. 90 lakhs and a processing capacity of 1.5 million kg. of tea. The factory has been set up with indigeneous machinery and completed as scheduled. The Corporation is constructing a second tea factory near Coonoor and will be setting up two more factories in the following two years. The government has also called attention to the need to harness the State's forest resources to develop forest based

industries. In this connection, the sandalwood trees in the Javadi Hills provide the raw materials for developing industrial units for the manufacture of sandalwood soaps, oils etc.

Truck Tyres and Textiles:

The demand for truck tyres is now fast picking up after a prolonged period of stagnation. In December and January, the demand for truck tyres and passenger car tyres increased by 10 to 20 per cent. The natural calamity of the cyclone in Tamil Nadu and Andhra Pradesh has led to this increased demand, and it now looks as if the truck and tyre industry will have to produce to capacity to meet the the growing demand. The Lakshmi Automatic Loom Works was inaugurated in January to produce high productive looms which can weave any fabric. The factory situated in the SIPCOT complex in Hosur costs Rs. 900 lakhs. It starts with booking over 1,000 machines on order and in addition the company will be exporting machines worth over Rs. 14 crores in 10 years. Covering an area of 40 acres, the plant was completed in 18 months. A customer training centre is being set up at the site to train technicians in the running and maintenance of the weaving machines. Subsidiary units are encouraged to produce specialised items of high quality and precision such as industrial plastics, rubbers and canvas, electrical and other items.

Sugar, Soda Ash and SPIC:

The State government has instructed sugar factories in the state not to reduce the price paid to cane growers this year. It has asked the co-operative sugar factories to pay farmers Rs. 125 per tonne. An ammonia chloride and soda ash plant at a cost of Rs. 33 crores is being set up by TIDCO adjoining the SPIC fertiliser plant at Tuticorin. A team of development engineers from SPIC is proceeding to Japan in late January to be trained in the knowhow and for purchasing equipment for the plant. In the meantime SPIC is implementing schemes to augment ammonia production both by replacing the converter catalyst and by recovery from the purge gas. Ammonia capacity thereby exceeds 100 per cent. Also a scheme for utilising capacity in the complex sections of SPIC is being implemented. At present the phosphoric acid plant makes enough phosphoric acid to produce only 300 tonne of di-ammonium phosphate. Under the scheme, phosphoric acid is being imported for the balance of 200 tonnes capacity at a cost of more than Rs. 1 crore.

Handloom :

Tamil Nadu will be participating in a comprehensive scheme for production of blended handloom fabrics, including polyester handlooms now being finalised by a working group in the Union government textiles department. Tamil Nadu Handloom Weavers Co-operative Society has announced that it will produce mixed handloom fabrics in the coming 3 months. The country's production target for handlooms has been fixed at 3,700 million metres, of which 200 million metres will be polyester handlooms in both cotton and silk fabrics. On the export side, Tamil Nadu has orders for Rs. 2 crores of handloom cloth from Europe, US and Australia. Also negotiations are under way for the export of handloom cloth to the USSR. In January at the Tamil Nadu Pongal Fair in Madras, the National Handloom Expo 78 was organised in which 11 States and

one Union territory participated. A wide range of handloom fabrics from Kancheepuram silk, Pochampalli sarees, Punjabi woollens and Rajasthani tie and dye fabrics and tribal cloths were on a sale at the exhibition—the second of its kind. There was also a demonstration of different forms of weaving, including a loom for weaving 2 fabrics at the same time. A Union government rebate of 10 per cent and a further one of 10 per cent from the State government was offered on sales at the exhibition, and as a result, a good deal of the handloom stock was cleared.

Leather :

The capacity for finished leathers in 1977-78 has increased to 30.1 million pieces of hides and 63.10 million skins from 19.7 million and 9.90 million in 1973-74. Against this rapid expansion of finishing capacity, a techno-economic study by the RBI in Tamil Nadu and the South calls for a ban on the creation of new capacity in semi-finished leathers. However when sources of raw hides and skins hitherto not taken into account at the macro level are to be exploited, fresh capacity reserved for the small sector is recommended. While sanctioning capacity for finished leathers, preference should be given to those producing semi-finished ones and semi-finished exports should be on the basis of progress in build up of infrastructure facilities for finished leather, expansion of its external market and development of the domestic foot-wear and leather goods industry, it is suggested. It is also recommended that for quite some time there should be no ban on semi-finished leathers and outright subsidies or long term loans should be granted by State Trading Corporation from the Leather Export Development Fund for purchase of equipment and machinery. The export market is at present rather sluggish. Against the export earning of Rs. 320 crores in 1976-77, it is estimated that on the basis of the downward trend during the first 6 months of 1977-78, exports are not likely to reach that level this year. The manufacture and export of finished leathers fell by nearly 25 per cent. But recently the demand for finished leathers is picking up as seen from the trend of equiries and orders from abroad. A question has been raised whether the export of animals is consonant with the policy banning export of raw hides and skins. The Union government has prepared a Rs. 300 crores plan for the development of the leather industry in the decentralised sector for financing by the World Bank. The plan proposed 17 leather complexes to be created by the Bharat Leather Corporation, leading to an additional production of Rs. 300 crores, including Rs. 180 crores to be exported. Bank finance will be used to improve the quality of raw hides and skins, modernisation of existing plants, setting up new units in areas where there is a potential and creating infrastructure facilities for setting up units in backward areas. This plan differs from the World Bank proposal which on the basis of its survey mission wished to concentrate on developing leather production centres in Tamil Nadu, UP and West Bengal. But the government plan spreads out to include Bombay, Gorakhpur, Jullunder and Meerut for developing leather export goods industries, and to the backward areas of M.P., Orissa, Jammu and Kashmir and Maharashtra. The plan proposes to set up common service centres with expensive machines which individual small units cannot afford. Also testing facilities, designing and training facilities will be provided in each centre. Every

year Rs. 60 crores projects will be developed with Bank assistance. There seems to be too much of a thin spread of Bank assistance, which can be corrected if there is some concentration on Tamil Nadu, UP and West Bengal.

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IV Education, Science and Health

Educational Reform :

During January, unrest in educational institutions was on the decline except in one centre where a serious clash between students and busmen occured. At the Annual Conference of Vice-Chancellors held in January in Rajkot, the restructuration of higher education was debated with the Prime Minister and a detailed decision on the several facets of the reform of higher education made in the following terms : (a) major problems facing higher education in the country are : (i) the urgent need for peace in the campuses, (ii) the erosion of the autonomy and the standing of the universities, (iii) adoption of measures to reduce pressures on the university system, (iv) check on establishment of new institutions, (v) selective admission of students to full-time institutions, (vi) the opening of higher education to economically weaker students, (vii) expansion of non-formal channels of higher education, (viii) restructuring of courses at the under-graduate stage to make them more relevant and significant particularly to the local environment and rural realities, (ix) improvement of post-graduate facilities and the provision of unit courses at the post-graduate level to encourage flexibility of communication and inter-disciplinary approach, (x) enhanced involvement in fundamental research and application oriented research, (xi) relief from the pressure of examination domination in the system, (xii) correctives to increasing centralisation in the higher education system, making innovations and use of local social resources difficult, (xiii) the problem of medium of instruction, (xiv) integration of education from primary to university levels and increase of productivity at all levels, (xv) financial problems faced by higher education institutions. (b) in order to find solutions to the above mentioned problems of restructuration, the following lines of action are recommended : (i) to ensure peace in the campus it is necessary that (a) there should be active co-operation of teachers in maintaining the academic spirit ; (b) student co-operation and understanding be ensured in the peaceful functioning of the institution so that it can discharge its academic and community responsibilities ; (c) non-interference by political parties in the normal functioning of the educational institutions should, by agreement among them be ensured ; (d) when there develops a law and order problem in the campus, the law and order

machinery should be allowed to take over; (e) the Vice-Chancellor should be sensitive to all the internal and *external forces which act on the campus* and its peaceful atmosphere and act to satisfy the genuine needs of the academic community. In this connection the Association pays a warm tribute to the Prime Minister and the Union Minister for education and social welfare for the clear and categorical leadership and assurance given about their commitment to maintaining peace in the campuses, (ii) the erosion of the autonomy of the University and its standing in the community is of grave concern to everyone in society. Every act of *Government abolishing the statutory* bodies of the University, replacing the Vice-Chancellor and University authorities with their nominees and intervening in the academic and administrative life of the university is injurious to the essential functions and services that the university performs to society today and to future generations of the country. The Association should take a clear stand on every such action when there is an attempt of such erosion of the University's autonomy and standing, (iii) to provide higher education opportunities to *the deprived sections of society, half* the seats in full-time institutions should be reserved for them, with scholarships and hostel grants to enable them to attend higher education institutions along with the requirement that they engage in some productive activity. Remedial teaching should be provided to bring them up to the standards of the other students, (iv) formal and non-formal channels of higher education should be treated at par both in academic terms and for purposes of employment. Non-formal education as an expression of the doctrine of life long learning will open up the university and should include: correspondence education, evening college, private study, making conditions for appear*ing at examinations,* the number of appearances, etc. as flexible as possible, other part-time and own time activity, adopting open university methods and techniques as some southern universities have done, and bringing the university community closer together on problem solving programmes and techniques. There is also the responsibility for continuing education which the university carries, through which it performs various learning services to both the educated, semi-educated and uneducated sections of the community through: (i) *programmes of retraining the* educated unemployed, (ii) programmes of re-orienting, updating and improving the technical knowledge of graduates and postgraduates, (iii) programmes making available the facilities of universities and colleges for training of workers, artisans and others, (iv) specialised programme providing legal aid to the poorer sections, (v) running campaigns on education for citizenship and democracy and (vi) participating in the programme of integrated rural development particularly National Adult Education Programme. (vii) Restructuration of *undergraduate* education to make it more relevant to our society and more responsive to disciplinary developments involves exposing each student to: (a) a set of foundation courses, (b) a set of core courses, (c) some applied courses of projects/field activity and (d) a supervised programme of national and community services, (viii) the responsibility for postgraduate education should increasingly be directly assumed by the universities themselves. In this connection, colleges which cannot even over a period of time achieve the academic norms established

by the University Grants Commission should be required to discontinue post-graduate facilities in order to maintain levels of excellence in this area of education, (ix) the present examination oriented system should be replaced by systems of learning involving semesterisation and trimesterisation, internal assessment, grading, the credit system and the other examinations reform proposals developed by the UGC and the AIU. It is in this connection that the transition from an examination dominated to a life long learning oriented system can be expedited if governments and employing agencies examine taking urgent steps to delink jobs from degrees, so that the degrees can reflect real learning aptitudes and attainments and employing agencies devise their selection procedures and norms. (x) in addition to the accepted responsibilities ot the university system for the creation of new knowledge through fundamental research, research programmes contributing to social development, especially rural development, should be encouraged and for this it is necessary for the research staff of the universities to be increasingly imbued with a social conscience and for universities to decentralise responsibilities to departments and colleges for such research to be undertaken, (ix) there should be decentralisation of authority in the university system at all levels and all down the line and it is in this context that there is urgency for the universities giving effect to the system of autonomous colleges, (x) the process of transition to Hindi or Regional Languages as the medium of instruction at the undergraduate stage should be expedited and the system of the two languages medium streams in many states should be reviewed in order to facilitate and quicken this transition. At the post graduate level, steps should be taken to quicken the pace of production of reference works, essential reading materials and translations in Hindi/regional languages so that a similar transition can be planned at this level. The growing use of Hindi/regional languages will increase rather than decrease the need to study English. The provision of greater facilities to learning English (mainly communicative and reading skills) at various levels with specific objectives for students wishing to enter a post-graduate course or research studies may be one way of meeting the needs in the post-graduate fields of students (xi) it is essential to involve teachers and students as joint partners in a programme of national and social services particularly through their participation in the national programme of Integrated Rural Development of which the national adult education programmes presents a specific challenge and an opportunity to the university community. The possibility of including this contribution of the staff within their normal workload and students within their curricular requirements should be taken up for examination by the university, (xii) steps should be taken to provide facilities for moral education (drawing upon the rich classical tradition and classical languages and literature) in schools, colleges and universities, supplemented by the moral lives of the staff and society which will strengthen and make real the moral institutions, (xiii) the university does not function in a vaccum and as part of a total system it must assume its responsibility for primary education both in the training of teachers and production of text-books in the national commitment for its universalisation, and in assisting the restructuring of secondary education in both its academic and vocational ingredients. The secondary education courses should

be planned flexibly. In all this the university can increase its productivity by ensuring fuller use of its classrooms, library and laboratory facilities both for the other stages of education as well as for all forms of non-formal education, as noted earlier. It can make a start in this by shortening its vacation and using it purposefully, (xiv) The problem of finance is not merely one of increase but timely and effective utilisation of funds sanctioned by the University Grants Commission. The central programmes of assistance to the universities and colleges should be diversified and made flexible. The system of ensuring matching grants by the State government need not be discontinued. However these matching grants should not be attached to specific and individual items of expenditure but be linked with the total grant available from the UGC. Also the existing ceiling on the number of students in a college for eligibility for grants should be lowered particularly for rural areas and in view of the fact that new colleges are not to be opened. The UGC should be enabled to make enhanced non-plan grants to State universities and this should be taken into account in deciding on its annual budget, (xv) finally, there is the urgent need for a review, evaluation and implementation machinery at the different levels-universities, UGC and the governments. The State government states that it has under study the system of admission to the B.Com. courses similar to that followed for engineering and medicine in order to avoid the collection of donations by the colleges when they admit such students. It also announced its decision that no new colleges would be started in 1978-79. A three day world conference on Islamic-Tamil studies in Tirunelveli in January has urged the State government to create a chair for research studies in Tamil-Muslim literature, give it its due place in school and college text-books and extend help for the publication of works by renowned Muslim poets.

Technical Education:

80 engineering colleges and 30 polytechnics in the State participated in an exhibition of students' project work put up at the engineering College, Guindy. The exhibition showed improved design content and quality of fabrication and greater relevance to the new national priorities were in evidence in the exhibits. Some of the project models are capable of commercial exploitation and can be taken up by small enterpreneurs after further work on project costs is undertaken. The college in Guindy exhibited its research projects in urban and mass transportation systems, low cost and prefabricated structures of energy management, rural development, communications and other fields. The main projects in exhibition related to the country's immediate requirements were: in rural development, automatic irrigation control, nursery, paddy seeder, tandem pedal pump, paddy huller, irrigation sprinkler, honey extraction, tapioca starch separator, pedal power grinder, trade wood treading machines and mobile wood finishing lathe: in energy, water cooler cum heater, solar water heater and solar energy engine : in bio-engineering, biotelemetry and pulse monitoring systems: in communications, automatic answering telephone: in teaching aids, dynamic TV, demonstrator, automatic traffic signals and electrical systems of modern automobiles: other machinery and products, included instant liquid cooler, electronic multi voltmeter, yarn examining machine, solid state stop

watch, mini 3-D, copying machine, solid state techno-meter for petrol engines, digital stop clock, solid state ultrasonic mosquito repellant, 5 axis tool positioner and electric and soldering iron.

Science :

The 65th session of the Indian Science Congress was inaugurated as usual by the Prime Minister who pointing to science increasing the wealth and welfare of the rich countries and the rich sector within one country emphasised the need for science to lift the poor masses out of the morass of poverty, stressing that it is to this that scientists in India 'should turn their attention, not only to international recognition. The focal theme of the congress was science education and rural development, and in its recommendations on the role of agricultural technology in rural development and on rural health services broke new ground. It recommended that higher secondary schools, colleges and university students should be involved in extension work, by making it a compulsory part of their curriculum. Programmes for science education for the rural family at home should be planned with regard to illiteracy and poverty. It stated that there was a need for agricultural polytechnics in rural areas to support the several agrobased industries being set up in the villages. Parallely at the annual meeting of the Vice-Chancellors of Agricultural Universities and Directors of its Research Institutes, ICAR has secured agreement that the thrust of agricultural research in 1978 will be on the entire farming system, not merely on individual crops. The major farming system features which require study are multiple cropping in irrigated areas, rainfed farming, mixed, and intercropping, multi level crop in garden lands to yield maximum yield and income. Emphasis is also to be laid on kitchen gardening, animal husbandry, agro-forestry and fresh water aquaculture and sea farming. Research in multiple cropping in irrigated areas needs attention because in different parts of the country, two, three or even four crop sequences are being followed. Are these, for example the rice wheat combination of Punjab and West Bengal, gainful from the yield-income point of view? Rainfed farming research is even more important because that covers the major agricultural crops of the country. Similarly multilevel cropping in gardens needs study. In a garden where fruit trees, palm trees and other trees are grown, it is possible to design a crop canopy where the vertical space is utilised more efficiently. Kitchen gardens can be one of the most efficient systems for solar and cultural energy conversion and need to be further researched. Mixed farming involves crops and animals that can take the form of crop livestock system, crop-fish system and crop-fish-livestock system which need study from the point of their generation of additional income and employment and efficient energy conversion. An international Congress on Solar Energy organised by the International Solar Energy Society was held in New Delhi in January attended by 1,000 experts. The Prime Minister who inaugurated the congress called upon the scientists to devise cheaper means of harnessing solar energy and also effective storage systems so that it can be made available throughout the year. UNIDO advised the developing countries to develop policy programme in non-conventional sources of energy and solar energy and stated that it would assist countries to initiate and develop an integrated programme of solar energy. In the Congress, it was

noted that research done in India and elsewhere reveals that solar energy can be put to profitable use in rural areas. Scientists in Annamalai University have developed a mobile 2.5 tonnes capacity grain dryer to dry and save a large quantity of grain in the monsoon season. Similarly solar energy can be used through a solar wax melter to melt wax to make candles, replacing electrical or other fuel energy. NPL, New Delhi, Birla Institute of Technological Sciences Pilani and Central Salt and Marine Chemicals Research Institute, Bhavnagar have developed solar pumps to pump water for agricultural purposes. Solar water heaters are being developed in many Indian Institutes and on a small scale are already available in the market. The Central Salt and Marine Chemicals Research Institute has constructed a pilot plan which can convert 100 litres of sea or brackish water into potable water. Solar thermo electric power system for rural energy supply was envisaged in a BHEL paper for the Congress which states that within a period of 10 years small size, power packs of 20 kw to 500 kw would be available as an economic rural power supply source. US scientists described their successful experiments in storing solar energy in natural aquifers and in native rock. Turkey studies on solar radiation data show available solar energy as being enough for practical applications throughout Turkey. DST reports sanctioning Rs. 186 lakhs for R and D projects in solar thermal systems and photo voltaic devices being carried out at IITs, IISc, BHEL,Punjab Agricultural University etc. Research is continuing on the solar photo voltaic panels for power generation with a view to reducing its costs. DST is also negotiating for commercial application of industrial water heating and treating projects on paper and textiles industry. Other priority programmes for development as noted earlier include solar grain dryers, pumps, power plants, cold storage units, hot water systems and solar cell plants. A study conducted on river Cauvery by the Man and Biosphere research workers stationed at Mettur dam has revealed that there is urgent need to educate the public and the civic authorities of the dangers of using the water from the river near Bhavani, Pallipalayam and Komarapalayam as the waters there are highly polluted by industrial effluents and wastes. The 500 dyeing factories on either side of the river at Komarapalayam and Palli-palayam pollute the river continuously and at the former place and at Bhavani domestic and municipal sewage is added to the pollutant mess and the paper mill at Pallipalayam contributes its share. There is need to control these pollutants —a clear responsibility of the industrial units and the municipalities—to educate the public as to the dangers. The students of the government polytechnic, Tiruchy have developed an improved smokeless *chula* which can burn any type of fuel commonly available in villages without smoking. The initial cost of the *chula* is Rs. 50 and there is a 20 to 30 per cent saving in fuel costs. Tube Investments, Avadi announced in mid January that it will start commercial production of modern metallic bullock carts from March. In collaboration with IIT, Madras, the company has developed 2 light weight bullock carts which can carry higher loads than conventional carts. The company will begin producing 250 carts a month. With a little modification, the cart could be used as a single or double bullock cart. It could be fitted with pneumatic tyres or tubular wheels with hard rubber or metallic tyres, with or

without the detachable side covers. It has rougher but light weight tubular frame and axle beam, tapered roller bearings to reduce friction between wheel and axle, a new yoke and harness arrangement to lighten the strain on the animal and so increase its pulling capacity. The Indo-Soviet scientific collaboration programme includes carrying soviet scientific equipment into the upper atmosphere by Indian baloons to be launched later this year from the Hyderabad testing ground. The baloons will carry special gamma ray telescopes which are too heavy to be launched into orbit aboard artificial earth satellites. A multi purpose Indian National Satellite—INSAT—for use in telecommunications, television and meteorology is being fabricated by ISRO with the help of 17 international satellite manufacturers The INSAT will be launced by NASA, will have 2 TV transformers, beam programme in four languages and cover all the 7,00,000 villages in the country (against the 12,000 covered by SITE). In 1978 December, the satellite for search observations modified from Aryabhatta will be launched. In 1979 the Indian built Rohini rocket will be launched from Sriharikota with an experimental load of 40 kg. The Arien Passenger Pay Load Experiments Satellite will be launched in 1980 with French assistance as the geo-stationary satellite. On the jute front, a new direction and greater thrust is to be given to R and D in the jute industry involving effective co-ordination between the government, R and D agencies and the industry. This is the main purpose of constituting the Jute Development Council which should result in the Indian jute industry retaining if not improving its share of the world packaging market through diversification of products and reduction in the cost of production. That is to be the thrust of the R and D project.

Health:

The government announced in January the exemption from customs duty of medical, surgical and diagnostic equipment, not manufactured in the country, if imported by hospitals run by government or charitable bodies which do not charge a fee. Also all life saving drugs used for free treatment of the poor are exempted. Further to reduce the cost of medical aid, the customs duty on certain medical, surgical and diagnostic equiment has been reduced from 75 to 45 per cent. In the 31st Indian Congress of Radiology, the need for every lakh of the population having one good X-ray apparatus and a qualified radiologist in the next 10 years was emphasised. Such centres should form the base from which radiological facitlies are made available to urban, semi-urban, and rural areas with mobile X-ray machines manned by trained technicians. Towards the end of January the Union health minister met with the Central Council of Health of the Central Family Welfare Council and acknowledged that Family Planning has suffered a serious setback which must now be made up. As a result of the efforts during first three years of the Fifth Plan, the birth rate came down to 34 per 1,000 in 1976-77; the 1977-78 replacement of targets by the 4 million voluntary sterilisations, 1 million IUDs and 5 million conventional contraceptive users as suggested level of performance and the non-insistence on sterilisation has resulted in the fact that in the first seven months of 1977-78, April-October, there are only 4.13 lakhs voluntary sterilisation (being 10 per cent of the annual level and less than 10 per

cent of the first seven months of 1976-77), with a 60 per cent decline in IUD insertions and 18 per cent decline in conventional contraceptive users. It looks, at this rate, as if the year will end with 1 million sterilsations, half a million IUD insertions and 3 million conventional contraceptive users, though because of the past performance, the brith rate for 1977-78 might be 33. But we will lose this gain from next year, as the number of protected couples decline from the current level of 2 million, the proportion of women in the reproductive age group in the total population which declined from 21.2 per cent in 1961 to 20.7 per cent in 1971 will now rise to 22 per cent in 1981 and 24.6 per cent in 1991. The percentage of married women among women of reproductive age group has, however, declined from 85 in 1961 to 82.9 in 1971 and 79.6 in 1991. Though these structural changes in population cancel each other out, the net balance is turning unfavourable and will result in a rise of the birth rate by 1½ points over the next 5 year period. Hence the Union minister of health appealed to the Councils and the people to take account of the alarming situation, which he termed disastrous, and as one pushing the clock of progress back. Now targets have been established and should be maintained and achieved. There is no escape from that. It was also noted that the first batch of 15,000 trained community health workers had already spread out in their respective villages and the second batch of 15,600 was undergoing training. This programme should gradually be taken over by the State governments.

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V Employment

The State government announced that in January it was drawing up an action plan to provide employment to 4 lakh workers in 4 years, along with a package of infrastructural facilities, finance and technical knowhow for unemployed graduates to take up self-employment projects. Similarly Rajasthan government proposes to provide full time and part time employment to 6.42 lakh persons in rural and urban areas with next year's proposed outlay of Rs. 235 crores. On the basis of increments in 1977-78, 3.86 lakhs will be employed in 1978-79, against the likely addition of 2.65 lakhs to the labour force, 3 lakh persons will be provided part time employment—through the *antyodaya* scheme, and 13,000 in government departments. The Union Planning Commission has undertaken an evaluation of the Employment Guarantee Scheme of the Maharashtra government and one of its findings is that non-preparation of detailed technical surveys and estimates in advance was a weakness. The monthly generation of employment fluctuated from 1.90 lakh persons in November 1976 to 7.16 lakh persons in

May 1976 and the expenditure rose from Rs. 13.54 crores in 1974–75 to Rs. 34.42 crores in 1975–76. It is urgent that there should be completion of works to be financed from normal departmental plan scheme or through loans. The Deputy Chairman of the Planning Commission affirms that there is need for employment guarantee schemes in urban areas also. Area planning will ensure a long term and short term employment policy and generation and the scheme should be viewed more as an approach rather than as a programme. One of the important gains in the labour areas was the decision of the labour ministers of the Southern region meeting in Trivandrum at the end of January about the need for legislation for security of employment to farm workers on the lines of the Kerala Agricultural Workers Act. The prevailing wage rates for beedi workers for example, is Rs. 6.50 to 7 in Kerala Rs. 5.25 to 5.50 in Tamil Nadu, Rs. 5.25 in Karnataka and Rs. 4 to 4. 85 in Andhra Pradesh. It was suggested that the Union government could prepare a model legislation on the basis of which each State could legislate to suit its requirements. The Union government announced in January at the first meeting of the committee on workers participation that it was formulating a scheme to enable full and effective participation of workers in the management of industrial undertakings—at the shop level, at the plant level, and the floor level. The committee on workers participation in management noted the change in the concept from participation in industry to participation in management. The State government annowneed some reduction in industrial unrest in January in the State. It has helped resolve 142 strikes and lockouts from July 1, 1977 and in early January 1978 there were only 9 strikes and lockouts affecting 5,100 workers still outstanding it was announced. In addition to these, 9 textile mills which were closed were opened with the help of government finance. The government revised minimum wage rates in four industries —bricks and tiles, matches and fire works, sago and saltpans to the benefit of the workers. CSIR reports in its Technical Manpower Bulletin for August 1976 about 363 scientific and technical personnel abroad in the national Register,—the largest being chemists (59) followed by mechanical engineers (37). UK had the largest (522) followed by US (110). Science leads with 132 followed by 128 engineers. The September Bulletin gives an analysis of the functioning of the scientific pool which upto 30 June 1977 (from 1959) selected 12,249 persons, of whom 5,511 joined, of whom 5,005 left on finding regular employment after a few days to 3 years or more. The scientists staying for 2 years are the science specialists (35.1 per cent) followed by social science (33.8 per cent) and the same order is to be found for those staying for 3 years in the pool and those staying beyond that. Among scientists, it is microbiologists and physiologists who wait for 2 and 3 years in large proportion before finding jobs, among engineers it is chemical and electrical engineers, and architecture specialists who face the largest unemployment, among technologists the pharmacy specialists, and among medical personnel where the stay for the majority (59.4 per cent) is less than 1 year, it is obstetries and gynaecology which involves longer stay in the pool. The October Bulletin reports that in 1976–77 Rs. 344 crores were spent on science and technology in India, 90 per cent by government and 10 per cent by the private sector. R and D expenditure increaeed from Rs. 22.93

crores in 1958-59, 0.18 per cent of GNP to Rs. 285.85 crores in 1974–75, 0.45 per cent of GNP. The Union government spent 2.57 per cent of its budget on R and D, about 80 per cent of which was incurred by DAE (19.5 per cent) Defence (18.2 per cent), CSIR (14.6 per cent), Space (13.9 per cent), ICAR (11.8 per cent). Expenditure on R and D by the private sector was Rs. 36 crores in 1974–75, chemicals and electronic and electrical sectors accounting for 62 per cent. 55 per cent of companies spent less than 1 per cent of their sales turnover, 40 per cent between 1 and 5 per cent and only 5 per cent spent over 5 per cent. 1.21 lakh persons were employed in R and D establishments, of whom 59,000 were scientists—35 per cent by scientific agencies, 18 per cent by universities, 17 per cent by private sector and 15 per cent by central ministries and states. The number of scientists and engineers engaged in R and D per 10,000 population is 1 for India, 25 for US, 18 for West Germany, 19 for Japan, 19 for Canada and 37 for USSR. The proportion of GNP spent on R and D is 0.45 per cent for India, 2.4 per cent for US, 3.1 per cent for USSR, 2.4 per cent for West Germany and 1.9 per cent for Japan.

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VI Other Items

AIU:

The 31st Annual meeting of the Association of Indian Universities met in the University of Saurashtra, Rajkot on the theme 'Restructuration of the education system in light of the present day needs of the country'. The conference was inaugurated by the Prime Minister who stayed on and spent half a day with the Vice-Chancellors in discussion of the major issues in restructuring higher education with particular reference to use of regional languages, peace in the complex, university finance, universities and integrated rural development. The major outcome of the conference has been reported earlier under the education section.

IAPL and EI:

The 10th Annual conference of the Indian Association of Programmed Learning and Educational Innovation was held at Gandhi Vidya Mandir at Sardarsahr, Rajasthan on the subject *Education for Rural Development*. There was general agreement that education as at present planned and operated is holding back rural development. The major innovation needed is to change the content of education to make it rural based, increase the holding power of the school and launch a massive programme of non-formal education and functional literacy to educate the drop-outs and the adult illiterates.

TNBCE and Matric Schools:

The Executive Committee of the Tamil Nadu Board of Continuing Education met in mid January and approved the programme of the Board to launch a large functional literacy project with the assistance of the Union government. The working of the non-formal education project was reviewed and the continuation and expansion of the project approved. The SCERT ran at the end of January an orientation programme for the heads of matriculation schools. It was an occasion when the heads of these progressive schools looked fully into the problem of transposing themselves to the 10 and plus 2 system and planned ahead their action and perspectives in the new sitiuaton, arising when they will be transferred from the university to the care of the Board of Matriculation schools.

AIR and TV:

In January, the committee dealing with operationalising the autonomous status of AIR and TV met twice in Delhi. The committee is in the final stages of drafting its report and most of the January sittings were taken up with the organisational aspects of the new structure and the nature of its various parts and functions which are of course related to the committee's evaluation of the past and current position of the two agencies. It is planned to present the finished report to the minister of information and broadcasting at the end of February.

Epigraphy and P.T.:

The Indian Epigraphical society had its fifth session in Madras on which occasion the fact that India has the largest number of stone engravings and epigraphs in the world—of the order of 1 lakh—and that Tamil Nadu has nearly half of the Indian total was noted. It was also agreed that epigraphy is the source not only for history and political sciences, but also for economics, botany, astronomy and other sciences. The Post and Telegraph office celebrated its annual week in January, running a very interesting symposium on the gaps in the services offered by the system. It was agreed that the greatest gap was the absence of knowledge of the system on the part of the general public, particularly the educated public, and the problem of the time consumption in obtaining its services in cities where time is about as scarce as money—some times more scarce.

Institute of Traditional Cultures and SLBT:

The Institute of Traditional Cultures had its annual Governing Body meeting in January at which its programme report for 1977 was noted with appreciation and its activities for 1978 were approved. It was proposed that the Institute commence a programme of village studies as part of its effort to survey traditional cultures. The annual meeting of the Board of Trustees of the Southern Languages Book Trust was also held in January at Osmania University, Hyderabad at which the publications programme for 1977 was noted with approval and a programme of publications recommended by language panels was approved for 1978.

+ 2 Committee and Southern Vice-Chancellors:

There were two meetings of the Higher Secondary Education Committee held in

New Delhi in January, at which the reports of the 4 sub-committees were examined and the conclusion and recommendations approved with appropriate modifications. At a further meeting, the course of the academic stream was examined and proposed for incorporation in the final report. It is expected that the final report will be presented to the minister in mid February. The seventh meeting of the Southern Vice-Chancellors met in late January in Osmania University, Hyderabad at which the programme of restructuring education, regional languages as medium of instruction, relation with UGC and ICSSR, student unrest, recognising each other's courses and examinations, safeguarding the service and retirement benefits of staff when they are appointed in one University from another and Sixth Plan programmes were discussed and conclusions arrived at.

Seventh Finance Commission and COSSHIP:

The Seventh Finance Commission visited Tamil Nadu in late January and received evidence on the financial (non-plan) gap and needs of the State for the Sixth. The State government presented *an excellent memorandum on the subject* and the other individual witnesses emphasised the need for financial devolution—in terms of individual taxes to match the development responsibilities placed on the State. A seminar of southern universities colleges co-operative programmes for the improvement of the Social and human sciences was held at the end of January at Vivekananda College at which some 60 social science teachers from the southern universities were present. The seminar was an occasion for exchanges on improved learning and teaching methods in the social and human sciences, and ways and means of improving the time distribution for the students between lectures, community service, library work and home assignments.

Productivity, CLRI and MIDS:

The Silver Jubilee Conference of the Indian Institute of Industrial Engineers was held at the end of January in BHEL, Tiruchi when the positive and negative aspects of the national scene were reviewed and the urgency of applying of productivity norms to lower our high cost industrial structure, improve quality of products and extend productivity sciences to agriculture, health and education were emphasised. Similarly CLRI also celebrated its Silver Jubilee at its annual Tanners Get Together and Fair where again the emphasis was on improved productivity in the transition from raw skins and hides to finished leather and leather products, and the need to recycle the wastes and effluents which are a serious health hazard. At the end of January, the ICSSR visiting mission visited Madras Institute of Development Studies to review its Sixth Plan proposals and reached agreement with the Director *and Director – Designate on* the levels of expansion for the Sixth Plan.

University Events:

In January the University academic-events included a well organised international symposium on Crystallography attended by over 100 eminent foreign *scientists, including* 2 Nobel Laureates and a southern universities seminar on physical chemistry. There was also the review of several departmental plans—including those of the postgraduate

extension centre at Tiruchy. The Committees of Finance, Audit and Accounts, Inspection, Affiliation and Recognition and Affiliated Colleges met, as did the Syndicate to review and make decisions on the progress for the month of January.

Special Seminar:

In early January, there was a special seminar of the Madras Institute of Development Studies when Professor Shanin of Manchester University, UK, presented his theory of Agrarian Relationships and the Progress of the Concept and History of Social Justice. The main point of the theory is that there is no fixed pattern of land ownership in certain societies like the Soviet Union before the Revolution and the support of even the poor peasants to agrarian reform aimed at socialisation is a doubtful proposition. When this theory was extended to other areas like Punjab, there was the beginning of some interesting discussions in the seminar.

February Development Seminar:

The paper for the February seminar, *"Industrial Development"* by Dr. K. A. Zachariah, together with a summary of the discussion of the paper at the seminar held on Thursday 23rd February under the Chairmanship of Mr. T. V. Natarajan appears as the first article in this issue.

Second Article:

A paper, *'The Kerala Model'* appears as the second article.

INDUSTRIAL DEVELOPMENT

A Long - range View

By
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Madras

Since manufacturing activities form the key sector capable of generating concomitant activities in all other sectors, industrial development is considered the most potent force for economic growth in the long run. Tamil Nadu is an industrially important state and an overview of the progress of its industrialisation in quantitative terms is perhaps a proper beginning for a discussion of further development problems in this field. In an effort to develop a long range view, a theoretical framework comprising cause and effect relationships of the development process is presented. Empirical facts are then analysed against the backdrop of speculative reasoning. Policy options with fateful consequences are also discussed with a practical orientation and a multidisciplinary bias. The very real opportunities for the industrial advancement of Tamil Nadu are also highlighted.

Industrial Tamil Nadu

2. The State of Tamil Nadu comprises an area of 1,30,069 km. Its population of 41.2 crores in 1971 may have risen to 4.75 crores by now. The Economic Census of nonagricultural Establishments in the State, October-December 1977, disclosed that 5 per cent of the population, or more precisely, 23.9 lakh persons were engaged in the unorganised sector of nonagricultural activities like mining, manufacturing, construction, transportation, trade and services, excluding the self-employed engaging only own family members. Hired labourers numbered 21.1 lakhs. Rural and Urban distribution of these establishments is as shown below.

	Establishment	*Employment*
Rural	44.8%	38.7%
Urban	55.2%	61.3%

Districts ranked 1 to 4 with the largest number of "unorganised" non-agricultural employment are listed in Table 1.

TABLE: 1

TOP FOUR DISTRICTS OF HIGH EMPLOYMENT IN UNORGANISED NONAGRICULTURAL SECTOR (Excluding Family Establishments without hired labour). TAMIL NADU, 1977

Rank of District	Usual Employment		
	Rural	Urban	Rural and Urban
1	Coimbatore 1,30,278	Madras 3,09,044	Coimbatore 3,46,312
2	North Arcot 1,10,045	Coimbatore 2,16,034	Madras 3,09,044
3	Salem 91,233	Madurai 1,40,083	Salem 2,06,123
4	Tiruchirapalli. 80,459	Chengalpattu 1,39,245	Madurai 2,02,419

Source : *Economic Census of Nonagricultural Establishments, October-December 1977.* (Mimeographed) Director of Statistics, Madras

3. The number of companies registered in Tamil Nadu during 5 years from 1971-72 are given in Table 2.

TABLE: 2

PROGRESS OF COMPANY REGISTRATION, TAMIL NADU, 1971-72 to 1975-76

Year	Number			Paid-up Capital (Rs. Crores)		
	Public	Private	Total	Public	Private	Total
1971-72	27	141	168	3.11	4.13	7.24
1972-73	20	166	186	13.31	4.87	18.19
1973-74	37	212	249	29.24	3.15	32.39
1974-75	34	273	307	28.28	10.23	38.52
1975-76	29	184	213	6.22	4.68	10.90

a. Details may not tally with totals because of rounding off.

Source : *Industrial Growth of Tamil Nadu. Major Industries. A Review. 1976-77.* Industries Department, Government of Tamil Nadu, Madras, 1977.

4. The box below shows the growth of registered factories in Tamil Nadu since 1972.

Year	No. of Factories	No. of Workers
1972	6,651	4,45,100
1973	6,816	4,52,000
1974	6,985	4,98,804
1974	7,408	4,99,672
1976	7.918	5,06,391

5. The Tamil Nadu scenario is not without its ups and downs. We witness a changing panorama with differential rates of increase and decrease in different industries. Table 3 presents the change in output levels that has occurred between 1971 and 1976 in Tamil Nadu industries. While expansion affected 9 products, contraction hit 15 other products. Of the 15 hit by contraction, the output of 4 products in 1976 was even less than in 1961.

6. Sugar Industry, despite the shrinkage it suffered, is now poised for growth. Besides the public sector Tamil Nadu Sugar Corporation, some units in the private and co-operative sectors have also commenced production.

7. The cotton textile industry has been passing through crises. Yet, the spindleage in the co-operative sector is slated for an increase from 2 lakhs to 3 lakhs. Modernisation is the watchword for this industry if it is to survive perilous times that lie ahead. Tamil Nadu's pre-eminent position in the leather industry will also be seriously challenged if technological progress is allowed to suffer for long. Collaboration with Italian manufacturers should therefore be welcome. The State government is constituting a leather corporation which may also accelerate the growth of this industry.

8. The central public sector projects in the state are Neyveli Lignite Corporation, Integral Coach Factory, Lube Blending Plant and Drum Plant of Indian Oil Corporation, Madras Fertilisers, Heavy Vehicles Factory and Ordnance Factory, Surgical instruments Plant, Bharat Heavy Electricals and Salem Steel.

TABLE : 3

CHANGE IN INDUSTRIAL OUTPUT LEVELS, TAMIL NADU 1971 to 1976

Product	Unit	Output in 1971	Output in 1976	Increase/ Decrease
Expansion				
1. Mixed fertilisers	Tonnes	93,540	4,16,322	+345.1%
2. Motor cycles	Nos	10,428	18,399	+76.4%
3. Internal cumbustion engines	'00 Nos	230	402	+74.8%
4. Safety matches	'000 Gross Boxes	41,022	70,333	+71.2%
5. Asbestos cement products	'00 tonnes	577	700	+21.3%
6. Cement	'000 tonnes	2,799	3,295	+17.7%
7. Cotton yarn	'000 tonnes	160	185	+15.6%
8. Refractories	Tonne	1,23,516	1,39,580	+13.1%
9. Tea	Tonne	55,008	55,846	+1.5%
Contraction				
1. Bicycles	'000 Nos	345	341	- 1.2%
2. Grinding wheels	Tonne	3,444	3,333	- 3.2%
3. Electric motors	'00 Nos	1,030	989	- 5.0%
4. Coffee	Tonne	7,524	7,065	- 6.1%
5. Typewriters	Nos.	10,272	9,120	-11.2%
6. Stable fibre yarn	Tonne	25,944	22,852	-11.9%
7. Caustic soda	Tonne	1,11,948	94,399	-15.7%
8. Dry cells	Lakh	1,109	930	-16.1%
9. Tyres (Giant & Cycle)	'000 Nos	9,051	7,177	-20.7%
10. Power transformers	'000 kva	1,303	1,131	-24.8%
11. Coated abrasives	'00 Reams	847	654[a]	-22.8%
12. Superphosphate	Tonne	1,43,940	1,04,203[a]	-27.6%
13. Sugar	'000 Tonnes	299	192	-35.8%
14. Hydrogenated oil	Tonne	21,852	6,853[a]	-68.7%
15. Refined oil	Tonne	9,660	1,970[a]	-79.4%

a. Less than the output in 1961 also

Source : Director of Statistics, Madras.

9. The Annual Survey of Industries 1975-76 published in December 1977 affords a comparison between Tamil Nadu and India in respect of some salient features.

TABLE : 4

COMPARISON OF SALIENT FEATURES OF THE FACTORY SECTOR, TAMIL NADU AND INDIA, 1975-76.

Variable/Ratio	Tamil Nadu	India
Variables		
Number of factories	7,348	71,705
Fixed, capital (Depreciated value) Rs. Cr.	1,130	14,029
Productive capital Rs. Cr.	1,683	24,032
Output Rs. Cr.	2,917	29,866
Value added Rs. Cr.	544	6,387
Emoluments Rs. Cr.	330	3,463
Employment	6,40,625	63,80,745
Ratios		
Fixed capital to output	0.39	0.47
Fixed capital to value added	2.00	2.20
Value added to output	0.19	0.21
Emoluments to value added	0.60	0.54
Fixed capital to employment Rs	17,639	21,986

Source : Computed from *Annual Survey of Industries 1975-76 Summary of Results for Factory Sector* (Mimeographed) Central Statistical Organisation, New Delhi, 1977.

Tamil Nadu is comparatively strong except with regard to the ratio of emoluments to value added. Organised labour in the state should note this competitive weakness of Tamil Nadu industries and make up for this weakness rather than weaken the state further.

10. Value added by the factory sector in Tamil Nadu is 8.52 per cent of the all-India figure. Judged by this variable, Tamil Nadu ranked 4th in 1975-76 in industrial importance among all the states in India after Maharashtra (24.60 per cent), West Bengal (13.33 per cent) and Gujarat (8.94 per cent). (See Table 5 which shows the high ranking of Tamil Nadu in respect of various manufactured products.)

TABLE: 5

RANKING OF TAMIL NADU IN THE INDUSTRIAL PROFILE OF INDIA 1975-76

Product	Output in Tamil nadu (Rs. Crores)	Percent of All-India Output	Rank Among States.
Leather and products of leather and fur	124.12	62.28	1
Non-metallic mineral products	109.11	12.55	1
Transport equipment and parts	252.45	17.57	2
Rubber, plastic, coal, petroleum and other products	372.78	16.06	2
Machinery, machine tools and parts (Excl. electrical machinery).	267.59	15.81	2
Repair services	52.79	11.42	2
Cotton textiles	435.71	14.00	3
Electricity	197.46	10.87	3
Paper, paper products, printing, publishing and allied industries	87.29	10.21	3
Chemicals and chemical products (Excl. petroleum and coal)	337.66	8.92	3

Source: *Annual Survey of Industries, 1975-76, Summary of Results for Factory Sector.* (mimeographed), Central Statistical Organisation, New Delhi, 1977.

11. The Index Numbers of Industrial Production, compiled by the Director of Statistics, Madras, allow an intertemporal comparison from 1960.

Index Numbers of Industrial Production, Tamil Nadu, Old Series (1960=100.)

1971	183.9
1972	187.0
1973	179.7
1974	196.7
1975	169.6

12. Industrial production of Tamil Nadu doubled itself in a span of 15 years from 1960 to 1975. The comparison offered by Table 6 shows that Tamil Nadu recorded 52 per cent increase as against an all-India increase of 34 per cent in industrial production within a span of 6½ years which means an average annual rate of increase of 8.0 per cent and 5.3 per cent respectively against the base year 1970.

TABLE: 6

COMPARISON OF CHANGES IN THE INDICES OF INDUSTRIAL PRODUCTION, ALL MANUFACTURES, TAMIL NADU AND INDIA. 1976 and 1977 (Base 1970 = 100)

Year/Month	Tamil Nadu	India
1976	137.6	127.7
1977 January	143.2	139.7
February	136.8	137.6
March	154.2	147.4
April	130.3	133.8
May	129.6	133.0
June	141.2	135.2
July	151.8	133.8

Sources: Director of Statistics, Madras; *Monthly Abstract of Statistics*, September 1977; *Reserve Bank of India Bulletin*. September 1977.

13. The trend rate of growth established in Tamil Nadu is definitely better than the corresponding all-India rate of growth. Yet, this trend is thoroughly inadequate to fulfil the hopes and aspirations of the people. What then must be done? What magic spell can spectacularly increase the rate of increase of industrial activity? Examination of the determinants of prosperity and adversity, of the circumstances that make people rich or poor, of the cause-and-effect relationships of the development process itself may shed some light on this question.

A String of Relationships

14. Levels achieved in terms of economic development vary widely between countries. Historically, some countries were dependent territories of metropolitan powers. Apart from this, variations in climatic conditions, natural resources, internal organisation and polity accounted for international variations in the velocity of development. All things considered, the people themselves and how they manage their affairs mostly determine the direction and pace of their development. For, the people work as agents of change, make the best of available opportunities, use methods of diverse nature and transform material resources to suit their needs. Initial conditions may well be important, but successive steps in the use of methods and techniques are even more important. One tentative relationship can now be stated.

Relationship I

The greater (lesser) the ability of a society to absorb technological changes, the higher (lower) its potentiality for economic growth.

15. Human ability to devise and assimilate technological changes differs from country to country and from time to time and it is this ability that makes for differences in the potentiality for economic growth. All illustration may serve to explain this fact. In its material pursuits, an isolated tribal society, free from the trappings of modern civilisation, depends on its primitive techniques for collecting and processing food materials and the like. If it is unable to improve upon these techniques, it continues to be steeped in abject poverty, devoid of any possibility of economic upliftment.

16. Since the ability to make technological changes is vitally important, one may try to find how and why this ability is not the same in different countries. The number, quality and variety of available scientific and technical personnel is certainly one decisive factor that determines the rate of absorption of technological improvements. Massive use of expatriate technical manpower where needed as in Arabia, mitigate the shortage of this category in the short run. Further, new technology cannot take roots in a society that is incapable of providing sufficient material inputs; it is assumed that materials can be imported if advisable as Japan does or as Iran proposes to. Technological infrastructure should desirably include a network of industrial activities with forward and backward linkages. Isolated showpieces of sophisticated technology serve purposes of education, research and propaganda alone. Inter-relationship of industrial activities usually lends them the advantage of complementarity ; but the scale of operations should be adequate to sustain complementary growth of industries and hence magnitude is important. The availability and use of managerial talents capable of harnessing other productive resources is yet another condition necessary for establishing the capability of introducing technological changes. This takes us to the second relationship pertinent to the discussion. During the initial period of growth without external aid, when complementarity and magnitude of resources tend to zero, the ability to make changes in techniques is also negligible. If the relationship is linear, the rate of change in the complementarity and magnitude of resources at each stage of growth reflects a corresponding rate of change in the ability of the society to make technological changes.

Relationship 2

The higher (lower) the rate of change in the complementarity and magnitude of available and necessary material resources put to use in a society, the greater (lesser) its technical competence to incorporate technological changes significantly.

17. If growth can be identified by a measurable generic variable like the velocity of growth of Gross National Product it can be seen that the rate of change itself varies at different stages of growth. Technological change is slow at the beginning stages, then its velocity increases and gets further accelerated until retardation sets in; the course of technological progress internally generated is cenceptually similar to the variant rates of change in velocity as a function of time. External aid can provide additional accelerating force and then the curve raises faster, shortening the time needed for growth.

18. It is conceivable that the progress of each successive civilization was characterised by variations in rates of change. If that were the case, it is conceivable further that retardation at the extreme can be followed by acceleration and the cycle repeated in some fashion similar to the cycle of acceleration and retardation characterising the progress of civilisation if plotted diagramatically, in the form of a havy curve. Successive periods of growth, maturity and decline of civilizations fit in with the variant rates of change in velocity described above.

19. Historically viewed, the progress of mankind was consistently dependent on the technology used. Specifically, velocity of change hinged on the ability of the people to replace an existing technology by a superior one. But there have been cultural forces that interfered with sound economic decisions. A familiar example is the insistence of farmers on sowing seeds on or about a particular day in a year as preordained by centuries of local tradition. When the hold of cultural influences is strong, it takes considerable time and enormous effort to make the technological change implied in a new cropping pattern or a different method of cultivation. Resistance to technological change is a universal human trait, not confined to the realm of secluded and custom-bound rustic life. Are we not aware of the resistance to electronic computers in urban societies? Was there not massive resistance to automation in the United States of America and the Union of Socialist Soviet Republics? From the beginnings of industrial revolution in the United Kingdom, the record of progress of technology throughout the world is strewn with cases of resistance to change. The ability of society to counteract this resistance by coercion, persuasion or proper social security measures is a decisive factor that determines the velocity and extent of technological change. A labour surplus economy may not be organised to stand the social impact of a high momentum of technological change.

20. Technological unemployment is a social consequence of extensive application of new technology. If the quantity of physical output is pegged at a given level, any increase (decrease) of productivity of labour causes a decrease (increase) in the volume of employment. Since ever increasing productivity of labour is a concomitant of technological progress, some displacement of labour is

a direct consequence that cannot be forestalled ordinarily, despite increases in productive capacity and total quantity of *physical output that are usually attainable* in the short run. The prospect of technological unemployment is understandably unwelcome in a country with a backlog of massive unemployment. Cultural barriers are thus buttressed by a very real societal problem.

Relationship 3:

The greater (lesser) the ability of a society to mitigate technological unemployment and countermand resistance to change, the higher (lower) the momentum of its uptake of new technology.

21. Democratic countries which made significant technological progress have succeeded in mitigating technological unemployment by satisfactory social security measures. They did not succumb to social forces resistant to change. Their experience was that technological advancement generated an increasing volume of business with an eventual increase in employment which more than offset the unemployment it caused earlier. Here we identify a decisive social process that fostered technological progress in contradistinction to the state of affairs in this country today.

22. The availability of a superior technology is of course a condition precedent to its application. Even when the technology is available and the necessary social readjustments are possible, commercial feasibility is a factor that determines the extent of application of the technology. The technological superiority of any system of production is commercially meaningful *only* if (a)—save in the case of unrivalled technology monopolies—the products of comparable quality cost less than those of any other competing system at the point of final sale and (b) the market is large enough to sell products at sustainable prices when the system operates at the optimum level imposed by the technology.

23. Technological change can mean a new method or process for making products already familiar to the market or an entirely new range of products with new and diverse uses. In either case, the change makes for a faster rate of growth than otherwise would be the case. Recent deliberations of the Asian Productivity Organisation concerning diffusion of technology are worthy of note. *Current and projected demand,* however, places a limit on the extent of application of new technology and expansion of productive facilities.

Relationship 4:

The greater (lesser) the effective demand for a society's products and services in the country and abroad, the more probable that it advances technologically at an increased (decreased) momentum.

24. Poverty and low purchasing power of the people press down effective demand. Until real incomes improve, aggressive exploitation of overseas markets should provide the main thrust to the application of new technology, since the response of the domestic market may not be adequate to justify vast expansion and diversification of industry.

25. *Insufficient flow of investment* into industry can well be another factor that limits or delays extensive application of new technology. Investors and lenders may not possess the requisite funds for a proposed outlay or may fight shy of risking what they have in totally new ventures employing unfamiliar technology.

Relationship 5:

The greater (lesser) the momentum of the flow of industrial investment in a *society, the greater the chances of a higher (lower) rate of change in the* momentum of its technological development.

26. When business opportunities are ripe, fiscal and monetary policies should be geared to maximise investment in commercially feasible industrial ventures of any magnitude.

Relationship 6:

The higher (lower) the momentum of uptake of superior technology by a society, the greater (lesser) the momentum of its industrial development.

27. Higher and higher superiority of technology is sought and accomplished in the world of industry in order to generate fresh demands in addition to the established rate of increase in demand and thus to provide the impetus for a corresponding development of industries.

28. The set of relationships just discussed should explain international variations in the momentum of industrial development among metropolitan countries. Dependent territories are excluded *from discussion* because they are unable to set the course of their own destiny. Intranational variations could also be explained by the postulates of these relationships. Formulation and administration of public policies can vary between states that constitute a federal union and such variations heighten locational advantages and disadvantages.

A Series of Choices

29. Making a choice from possible alternative courses of action is an ongoing decision-making process. Policy decisions are made and revised from time to time in the light of past experience and realistic expectations. Is the clustering and dispersal of industrial units to be encouraged or discouraged and what alternative actions are possible and desirable to achieve the end in view? Should we encourage small scale industries and, discourage large scale industries and; if so, how best to carry this out? What is the choice between capital intensive, labour intensive and intermediate technology? Are we more concerned with the accumulation of wealth in a few hands than the impoverishment of the people as a whole? How do we choose between the public sector and the private sector in regard to opportunities for growth? Should restrictive policies be relaxed or made more stringent? These questions are uppermost in the minds of policy framers today.

30. It would appear a good policy to prevent musoroom growth of industrial units in and around large urban areas and to induce the setting up of industrial units in backward districts with a handsome capital subsidy of 15 per cent. The policy is apparently good because it promises a relatively more spatially

balanced growth of economic activities. Unfortunately, our experience shows that this handsome subsidy was not instrumental to any appreciable extent in fasturing growth of industries in the backward districts hithetro. The subsidy was probably inadequate to offset the locational disadvantages of backward areas. Entrepreneurial decision—making concerning location of industrial units, large or small, is also guided by considerations of costs of production of transportation, of marketing and of management. It is the total cost picture, embracing both capital costs and operational costs, that finally determines the competitive ability and success of the unit. A wrong location, therefore, can cause business failure. This principle is as much true of location in small towns and rural areas as much as in a backward district. The coercive power of the state can prevent the growth of industry in large urban areas but can scarcely influence entrepreneurial decisions based on economies of location unless accompanied by sufficiently attractive countervailing advantages. The upper limit of the quantum of subsidies and inducements offered as recompense cannot conceivably exceed the social benefits of wide dispersal of industrial activity. Inducements should include *inter se* the development of a reasonably satisfactory infrastructure. In the absence of wise and effective administrative back up, the exercise of coercive authority by the state has the effect of curbing economic development.

31. Promotion of small scale industries is yet another important aspect of industrial policy which aims to diffuse economic power and increase the volume of employment. Micro-economic studies should indicate that small scale industries have forward and backward linkages with medium and large scale industries and to that extent, the large scale sector dominates the scene. In regard to employment potential, the policy makers appear to be on surer grounds. Large scale industries use superior technology which yields relatively high productivity of labour. Although it is possible for a small firm to use superior technology, it is generally observed, for very many practical reasons, that the smaller the firm size, the lower the level of technology used and vice versa. One may hasten to add that it is hazardous to theorise on this empirical observation.

32. Industries reserved for exclusive development in the small scale sector number more than 500 in India today. The rationale for selecting the industries included in the long list is not spelled out in the policy statement. The assumption is that the small scale sector can manuafcture the items in the reserved list and meet the market demand in full and that it cannot survive in competition with the medium and large scale sectors. That the small scale sector can flourish only in a sheltered market means that its relatively high costs are passed on to the consumer in terms of correspondingly high prices. Further, the low level of technology may not ensure high quality. High-priced low-quality products are supplied in rich variety. The consumers are thus required to carry the burden of social cost of sheltering the small sector. When elasticity of demand is sensitive to prices, and against the background of falling real incomes for the average man, the market response to high prices has to be poor. The prospect is not bright for us to push the situation too far.

33. Small scale and cottage industries and infant industries no doubt deserve help. And this help is best administered in the form of subsidies, instead of reservations of the kind just discussed. Large scale industries that compete with the small scale sector may, in addition, pay a compensatory cess as cotton textile mills do at present. The rates of subsidy and cess can be so determined as to hold an even balance between the small scale sector and the large with possible variations between industries In order that time-consuming bureaucratic procedures do not undermine the purpose of this scheme and honest businessmen do not suffer, subsidy should be granted and cess levied on the basis of returns filed by industrial units. If subsequent investigations reveal false declarations calculated to cheat the administration, subsidy may be suspended or cess enhanced for a specific period of time as a punitive measure. To discourage litigation, the courts should be empowered to punish the guilty with deterrent penalties like heavy fines and imprisonment.

34. A tiny unit or a small scale industrial unit must however be set on a course of growth. Do we shut out the probability that a small unit can grow into a medium scale unit and a medium scale unit ? Take any small scale industrial unit enjoying the protection accorded by the reserved list and producing, say, gun metal bushes, cycle tyres or calcium silicate. The present industrial policy does not allow the unit to expand beyond the upper limit defined for the small scale sector. Here, are we helping or hurting industrial development?

35. Policy makers should desist from placing arbitrary limits to the growth of firms. A firm should be left free to grow in size to its peak efficiency; it should actually be helped to derive the advantages of economies of scale. Optimum size of the firm does vary with the level of technology used even in the same industry, not to mention interindustry variations. Upgrading of technology should also be encouraged in so far as the effort is for cost reduction, development of new processes, introduction of new products, or improvement of product quality or for sheer survival in business. No country can afford to ban technological progress except at great peril to itself.

36. Differences in technology categorise industries into capital intensive and labour intensive. Against the background of massive unemployment and underemployment, public opinion has grown averse to capital intensive technology or, synonmously, high technology. It would appear that the advent of new technology casts a malevolent influence on the employment situation and herce is undesirable.

37. Since technological change generates unemployment, the problem can be tackled either by an acceptable scheme of social security that takes care of the technologically displaced person or by a freezing of further technological progress in terms of direction and magnitude. If a proper social security scheme covering unemployment is rejected or delayed for any reason, the alternative of freezing technological progress may be considered. An exercise in computer simultation is what is actually needed for projecting the consequences. A third-generation computer can handle this job speedily. In the absence of the output of a well-designed computer exercise, some speculative reasoning on general consequences of technology freeze may be permitted.

Population is bound to increase. Rise in demand for products and services can be expected to be met by industries at the technology level of the handloom or low-technology based small scale sector which alone are assumed to expand. There will be some increase in the volume of employment. But marginal cost will tend to increase and price [1] inflation is inevitable.

INDEX NUMBERS OF WHOLESALE PRICES

(Base : 1970—71 = 100)

	1971-72	1975-76	1976-77	April 1977	Jan. 1978
All commodities	105.6	173.0	176.4	184.1	184.0
Manufactured products	109.5	171.2	175.1	180.6	177.2

Sources: RBI *Bulletin* and *RBI Weekly Statistical Supplement*

And real income in the hands of the common man will decline over time faster than it does now. Final consequences will be anything but desirable, not withstanding ephemeral gains in terms of increased employment. The postulates of Relationship 1 (*vide* para 14 above) should strengthen this line of reasoning.

38. Although full employment is always to be preferred to mass idleness, increasing employment at earning levels below the poverty line is not what is optimistically hoped for. Our effort should be to keep earning levels above the poverty line. Labour intensive industries cannot usually afford the wage levels to ensure this. We, therefore, veer round to accept superior technology which can keep the employees above the poverty line and to the necessity of unemployment benefits as part of a comprehensive social security scheme.

39. A prudent public policy is not to force the choice of technology by fiat. The momentum of industrial development can be lost by coercion. Birth of new units in number and magnitude can then be expected to be at a slower rate. Coercion can generate technological obsolescence even in existing units endangering their successful survival and growth. Most of the 'sick' units of today are very real examples of business casualty owing to technological obsolescence. Failure to keep abreast of technological changes diminishes the life expectancy of industrial units, large and small.

40. There are occupations which enjoy a natural protection against the march of technology. For example, peeling and

1. A tiny industrial unit is one with machinery and equipment worth upto Rs. 1 lakh. The upper limit for a small scale unit is Rs. 10 lakhs and for an ancillary unit Rs. 15 lakhs.

grading of shrimps is best done without the aid of machines. Here, processing cost is comparatively less than mechanised peeling and grading. In fact, a discrete blend of different levels of technology may probably be the ideal in the generality of cases. There is a good likelihood that intermediate technology is the most profitable in several industries. The most appropriate technology mix is the one that yields the least cost combination of inputs in each case.

41. It is unfortunate that acute and widespread labour unrest has contributed to the tendency of firms to overcapitalise with a view to minimising manpower input. Scared employers deserve to be put at ease by the government in power. This will discourage unprofitably high technology on the one hand and encourage investment in appropriate technology on the other.

42. The ceaseless efforts of organised labour to push up wages and salaries higher and higher also tend to raise the level of technology with consequent adverse effect on the volume of manpower. It is reasonable that earnings of organised labour bear some relationship with national income per capita.

Further Policy Options

43. It is observed that restrictive policies and practices hinder rather than help industrial development. Rejection of applications for industrial licence or for making capital issues was among the most mischievous of restrictive policies. Tirades against the private sector were a favourite pastime for those who held the reins of political power till a year ago. It is now time to assess the social costs and social benefits of restrictive public policies towards industries, to test our hypotheses and to derive meaningful conclusions to serve as policy guidelines for the future.

44. There are already visible signs of change in the industrial policy. Industries which were reserved for the public sector are now open to the private sector also. During the last month, the embargo on private sector entry into defence industries also was lifted. It is now no secret that no industrial licence was denied to the private sector during the past seven months. It is pointed out that slow change of policy has not produced an adequate response in the private sector. An impartial investigation is necessary to discover why the stock market is still in disarray.

45. Perhaps commercial ventures are more rewarding than industrial enterprises. Lending rates to borrowers are probably too high for most competitive industries to make attractive profits.

MONEY RATES: JANUARY 1978

Bank Rate	: 9 per cent
IDBI Normal Lending Rate	: 11 per cent
SBI Prime Lending Rate	: 14 per cent
Scheduled Commercial Banks Minimum Lending Rate	: 12.5 per cent
Interbank Call Money Rate	: 10 per cent

Source: *RBI Weekly Statistical Supplement*

They tend to become more vulnerable when available funds do not meet the needs of expansion, diversification and modernisation. And the credit squeeze has made their position more difficult than ever. Under these circumstances, industrial development loses rather than gains momentum. Any further attempt to dry up the sources of finance of large scale industries will worsen the situation.

46. A sidelight on the credit squeeze as it operates today may be illuminating. Introduced as an anti-inflation measure, credit squeeze is applied with some vigour on the large scale sector which in turn exploits to the maximum its linkages with the small scale sector. To the extent possible, purchasers are pressurised to pay cash with order well in advance of deliveries. The small units, which survive as vendors to large units, do not get paid for their products in time: 30 days' credit has lengthened to 60 days; 45 days' credit has increased to 90 days; 3 months' credit is extended to 6 months. The small scale industrialist usually fails to square up and consequently fails to send supplies to the large unit in time which in turn affects the output of the latter also. The large units' forward linkages also grow weak with curtailed offtake. This situation is congenial for oligopolistic tendencies to assert themselves and restrict production Justifiably.

47. Credit squeeze on the productive mechanism can have disastrous results on the price front alone in the long run. For, the more stringent the credit squeeze on factories, the less the output of factories. Hampered supplies of consumer goods, components, intermediates and capital goods force prices upward. The consensus among economists at the Diamond Jubilee Conference of the Indian Economic Association at Madras in December 1977 was that supplies of wage goods should squarely meet the demand for the purpose of price stability and the investment on long-gestation projects alone bore an inflationary potential. It follows, then that curbs on manufacturing programmes are socially undesirable. Credit squeeze cannot be justified on the grounds of shortage of funds with the financing institutions either. In fact, for want of sound investment schemes, there are banks which do not know how and where to put their swelling deposits to productive use. The credit squeeze has already worked havoc and all industrial undertakings should be set free from its shackles forthwith. It is indeed a matter of great relief to find some clear indications of a possible change in industrial credit policy. It may now be hoped that this view will soon find expression in monetary policy reform and efficient management of money which allow unfettered development of industries.

48. Despite all the practical limitations, it is hoped that the Central Budget on the anvil will disclose a realistic fiscal policy calculated to accelerate economic development capable of outpacing population growth and price inflation. Here is the finest hour to make amends for past policy decisions which retarded industrial development in the country. Is it not common knowledge that indirect taxation is rather heavy in India? Customs and excise duties contribute substantially to central revenues. Traders and industtrialists successfully pass on this tax burden to the ultimate consumer. This is a desperate and pathetic situation—desperate because it seems there is no other means of bridging the gap on the revenue side of the budget, pathetic

because the average citizen groans under the weight of this burden. And in the final analysis, this does no good to anyone.

49. It is interesting to analyse the price of any product to find out the tax component of the price. The first phase of analysis should include excise duty, sales tax and octroi levied by the central government, state government and local government respectively. Export duty should be included for export products. The second phase of analysis should take into account the tax burden counted backwards from the last manufacturing stage. This should include the taxes paid on bought-out items like assemblies, subassemblies, components, intermediates and semi-manufactures of all types as well as on raw material inputs, power, fuel, transportation etc. The percentage of indirect tax component of retail prices, it may be noted, varies widely on account of variations in the rates of taxation. If there was no indirect tax, one is led to think, the economy would have boomed with many times more activities giving additional employment to millions of more people with consequent multiplier effects. Indirect taxation is conclusively a disincentive to industrial development. If the social opportunity cost of indirect taxation is so heavy, can we identify a comparable social benefit?

50. It is imperative to carry out a study of the social benefits of vastly increased public expenditure. An objective scrutiny will spotlight unproductive, underproductive and counterproductive activities of several government departments and offices. Taxpayers' money should not be syphoned off for expanding the public sector industries either, when financial institutions are ready to lend any amount of money to them. A number of public sector undertakings can actually be denationalised to release vast sums of money for useful public spending.

51. A restructuring of public expenditure, which permits a satisfactory cost-benefit ratio, can redeploy both funds and personnel for a full-fledged social security administration. Social security, as part of a general social policy, is inexorably linked to the social climate so urgently needed for massive industrial development. The designers of fiscal and monetary policies ought to make a resolute compromise on this issue lest social policy frustrate industrial development.

52. The low purchasing power of the average citizen sets natural limits to the expansion of consumer goods industries. The multiplier effect of increased use of material and human resources may not sustain expansion beyond a point. For the industries soon meet with a domestic marketing problem because of the depressing effect of increasing supplies on prices on the one hand and rising isocosts bearing a relationship with isoquants along the expansion path on the other. We do have a ready export market which can further be improved by adjusting the external value of the rupee to suit our national requirements. Increasing exports should enable us to liberalise imports to meet squarely any material shortage that cannot be remedied by the development of internal resources. Our meagre share of the world trade, a pitiful 0.6 percent, stands in urgent need of substantial increases. The bounty of our present trade balances should not lull us into a state of

complacence. Far from it, we have an enormously compelling economic necessity to play a dominant role in international trade. It is our domestic need to have an ever expanding overseas market for our industrial products.

53. At a review of the technological progress of developing countries during a meeting convened by the United Nations Industrial Development Organisation (UNIDO) at Lahore, Pakistan, a few months ago, it was pointed out that India was way ahead of other developing countries, despite all the mistakes and shortcomings of the past. Given the process know-how, we are now competent to carry out all the designing, engineering, fabrication and erection of any plant however big or complicated it may be. Other developing countries have to import entire plants and equipment as we ourselves did some years ago.

54. Our industrialists always look to foreign countries for technical collaboration. This is true in respect of the public sector as well as the private sector. While this tendency need not be totally discouraged, it may be noted that no country in the world is self-sufficient in technical know-how and that there is in fact a sizeable international trade in technology. More than a century of technological backwardness has blinded us to the immense possibilities of establishing a predominant position for India in the world trade in technology.

55. Our scientific research laboratories may not have achieved praiseworthy results. But we have already made some beginnings and our rich scientific talents have to be put to good use in order that they distinguish themselves with new and striking inventions. Probably, we have not been managing our scientific personnel properly. Real scientists do not have to be 'managed' for they are well motivated themselves. What they need most is facility for work. If we have been importing technology in the past, we have in recent years made a humble beginning with export of technology. In 1975-76 we have exported technology valued at Rs. 4 crores comprising turnkey projects and the like. This figure is certainly bound to rise steeply because of our increasing competitive ability in this field. Has there not been genuine surprise in many quarters when certain multinational companies have set up research laboratories in India? It is good business to set up laboratories for research and development (R and D) in this country. What is pitiable is that our own industrialists have not perceived the wisdom of organising research with the help of our own doctors of science. If it is worthwhile for multinationals to spend, say, 10 per cent of their total revenues on research, why should our companies not spend substantial amounts of money on this highly elevating and rewarding activity? Scientific talents are cheap and plentiful in this country more than anywhere else in the world. Financial institutions should give soft long term loans to industrial organisations for research purposes. There is no justification to confine practical research effort to government laboratories. It is notable that in advanced countries, the most significant contributions in the form of new products are made by private sector agencies devoted to research. Given the will to make rapid progress, our present role as a tardy follower of advancing technology will soon yield place to that

of *a forerunner and pacesetter* in the world of technology, as was the case centuries ago.

Vistas of Opportunities

56. The Techno-Industrial potential survey of Tamil Nadu by the Tata Economic Consultancy Services has unfolded a promising picture of the future of the State. Besides the new growth centres of Ranipet and Hosur developed by the State Industries Promotion Corporation of Tamil Nadu (SIPCOT), the 1975 report of the TECS has identified Madurai, Tiruchirapalli, Tirunelveli and Salem as possible additional centres that can be developed! Perhaps Tuticorin, Manamadurai and Pudukottai can also be developed as growth centres.

57. The Tata Economic Consultancy Services have prepared 350 project briefs in 1977. Of these, 104 are resource based projects, 61 demand based projects and 185 'footloose' projects. This is a monumental work which deserves to be kept updated every year. Entrepreneurs can now pick and choose new projects, get detailed project reports written, and move forward with project implementation.

58. An array of agencies offer help to entrepreneurs. They are the State Industries Promotion Corporation of Tamil Nadu (SIPCOT), the Tamil Nadu Industrial Investment Corporation (TIIC), the Tamil Nadu Industrial Development Corporation (TIDCO), the Tamil Nadu Small Industries Development Corporation (SIDCO), the Entrepreneurial Guidance Bureau of the Indian Investment Centre (IIC), the Industrial Escort Services (IES) of the Department of Industries, and the Directorate of Industries and Commerce. Additionally, the Industrial Development Bank of India (IDBI), commercial banks, the Industrial Credit and Investment Corporation of India (ICICI), the Industrial Finance Corporation of India (IFCI), National Industrial Development Corporation (NIDC) etc., also help industrial enterprises substantially. Help may also come forth from the International Finance Corporation (IFC) and other international financing agencies can also render valuable assistance.

59. If Gujarat can have the Kandla Free Trade Zone and Maharashtra the Santa Cruz Electronics Export Processing Zone (that they have belied expectations is another matter), Tamil Nadu should also be entitled to have a free trade zone within the State. The Vikram Sarabhai Functional Industrial Estate for Instruments and Electronics, Madras, may well be a possible site for a new free trade zone.

60. A forward looking people should develop internal resources fully and exploit opportunities in the wide world. The vast manpower that we have is a massive national asset which should not be exposed to neglect. Rapid growth of manufacturing industries generates concomitant developments in sectors like agriculture, mining, construction, transportation, trade, finance etc. to provide backward and forward linkages with beneficial effects on avenues of employment.

61. Far reaching industrial ecological changes, however, are very vital for improving the investment climate. Policy options discussed above have to be carefully chosen. Since indirect taxes are a restraint on maximising production,

these should eventually be retained only for discouraging consumption of undesirable products. Lowering or removal of indirect taxes will increase consumption depending on price elasticities of demand; and therefore, productive facilities have to be expanded and the requisite gestation time has to be taken into account. These can be phased out, planned and announced well in advance and the timing revised in response to actual investments materialising.

62. Popular leaders in contact with the masses know the extent of destitution, squalor, disease, misery and privation in the country. It is difficult for the ruling party to retain its successful leadership if this situation does not improve significantly. Only a political sociologist can explain fully the leadership problems which generate the stresses and strains on technological progress. The emphasis on employment, throwing technology in jeopardy, is understandable in this light alone. The present industrial policy cannot wipe out destitution in 10 or 20 years. Whatever little that can be done must be done much sooner through a modest scheme of social security, gently releasing what purports to be a stranglehold on technological advancement. A thorough social policy reform alone will improve the environment for a prosperous industrial economy.

63. Tamil Nadu can and must make a determined effort to improve the social climate to attract massive investment from all over India and abroad. If the social climate is now better in Maharashtra, West Bengal and elsewhere, that should offer no consolation; on the contrary, for providing necessary contrast, a favourable social climate in Tamil Nadu is positively worth the effort to build up. Leaders can take labour into confidence, win their genuine co-operation and project the proper image to the rest of the world.

64. The future augurs well for Tamil Nadu. With abundant supply of electricity from Kerala, Tamil Nadu is well poised for a more rapid rate of growth of industry than hitherto. While dearth of power is stalling industrial development in the rest of India, investors in the private sector or public sector or any sector for that matter, should prefer Tamil Nadu and Kerala to any other state in India at the moment. Labour force in Tamil Nadu is next only to Kerala in literacy. Between Tamil Nadu and Kerala, the investor's preference must certainly be for Tamil Nadu because of its lower general wage level and a consequent lower unit labour cost of production.

65. This is the most propitious time for investors from all over India to step into Tamil Nadu and join hand with the people and manufacture all the goods in short supply in the country and all the products which have a flourishing world market. The flow of investment into Tamil Nadu must continue unabated at least till problems like power shortage are solved satisfactorily in other States. While earning profits for themselves, investors in Tamil Nadu will also be fulfilling a patriotic obligation to keep prices reasonably under check by increasing supplies of goods and services in response to demand.

66. While being useful to the country and the rest of the world, Tamil Nadu will have served itself well with a magnificent rate of increase in industrial activity. If the people of Tamil Nadu can rise upto the occasion and seize this fortuitous

opportunity, the present rate of increase of industrial production can multiply 2-fold 3-fold, n-fold.

67. In sum, Tamil Nadu has progressed well industrially in comparison with the rest of India, although Gujarat has stolen a march over this state lately. Yet, a great responsibility devolves on the state's manufacturing sector to grow even more rapidly than in the past and provide the thrust for an all round development of the state. An increasing rate of increase in industrial development is therefore an imperative necessity. A theoretical discussion of cause and effect relationships disclosed the role of science and technology as the accelerator of economic development. Social forces that impede technological development must therefore be countered by suitable social innovations in order that industrial development gains geometric increase in momentum. It is indisputable that social policy is of paramount importance in this respect and it should not be so designed as to defeat national economic goals as it does now. A time span of 3 years will at the shortest be needed to rectify the gross mistakes committed the name of "socialistic pattern" for 30 years. Public administration generally and economic administration particularly must undergo radical changes structurally and functionally. The negative bureaucratic legacies inherited from the past are probably the most formidable obstacles to progress. Reforms initiated now will take many years, therefore, to have their beneficial results felt at the grassroots level. Without waiting uncertainly for a long time, Tamil Nadu can and must make the best of the unsatisfactory situation now and use such adventitious circumstances as there are and activate its industrial economy for an accelerated growth.

Summary of Discussion

In the discussion of the paper at the seminar held in the seminar room of the Institute on Thursday 23rd February 1978, under the charimanship of Mr. T. V. Natarajan,Computronics, Madras, he in his introductory remarks, said that he hoped that the discussions would lead to some definite conclusions on policies and instruments for industrial development in the state and for that matter in the country. The author, in presenting the paper, stated that a study of industrial development in Tamil Nadu showed that even though the state had achieved considerable progress in the'60s becoming the third most industrialised state in the country, the present position was by no means reassuring. The employment statistics show that 5 per cent of the population is engaged in the unorganised sector on non agricultural activities. The number of companies registered during the last five years increased from 168 to 213. Similarly the number of factories has also increased. The sugar industry, an important industrial activity, showed a decline of 35.8 per cent in output. The cotton textile industry is in the doldrums, a number of units reported sick and a few having closed down. The leather industry still occupies the premier place in India. There are 10 major Public Sector undertakings in the state. A comparison of the salient features of the factories in Tamil Nadu with those of the other states, reveals that Maharashtra holds the first rank and Tamil Nadu, fourth. The Index of industrial production with 1960 as base, shows that during 1960-'75, Tamil Nadu has recorded an increase of 52 per cent as against the all India figure of 34 per cent. The key factor for improving levels of development would appear to be the role of the human resource element. In studying the role of this factor, six relationships emerge : Regional and temporal variations in the ability of society to devise and assimilate technological change; the cyclic intra - regional variations in the rate of growth and the complementarity and magnitude of available material resources put to use; the ability or otherwise of a society to mitigate technological unemployment; the external and internal effective demand for the products and services; the rate of flow of investment in industry and most important, the absorptive capacity of an economy in terms of utilisation of superior technology on the tempo of industrial development. Some specific suggestions were made by the author to overcome the existing constraints. The small industries sector, for instance, could be more effectively assisted not by reservation of items but by direct subsidies raised through cess or tax. The least cost output picture could be worked out for each industry for which the government could help by providing information and data. The role of government from British days has been restrictive and the policies have generally been disadvantageous. Indiscriminate copying of practices from advanced countries may not be of advantage as conditions in our country are different. Regarding elimination of unemployment the author was of the view that as it cannot be liquidated in 10 to 20 years, a realistic approach would be provision of unemployment benefits and social security. This would also indicate the need for formulation of a social policy and planning in industry. Some of the maladies of the industrial

structure and situation have arisen from differences between the decision makers at political level and expert advice. The present government seem to be working out certain policy changes. In working out such policies it may be borne in mind that we do not lack in a reservoir of technologists and their services should be more effectively used, particularly in R & D programmes. This specially applies to Tamil Nadu which on the whole is poised for an accelerated growth in industry.

During the discussion it was observed that the NCAER techno-economic survey (1958) had come to the conclusion that Tamil Nadu did not have potential for considerable long-term industrial development as natural resources endowment, specially in minerals was poor and it listed a number of other constraints. However, Tamil Nadu in the last 20 years has become the fourth most industrialised state. In fact, industrialisation in the state has been by invitation as industries have been housed in Tamil Nadu which does not mean the development of industries on an internal resource base. This housing of industries may be due principally to favourable labour conditions and state government's industrial policy. In view of this, the increase in the number of registered factories does not by itself provide an index of stable industrialisation as a change in conditions might lead to a flight of investment from the state.

Furthermore, though the share of the manufacturing sector in the state's net domestic product has risen to 28 per cent and the share of agriculture has come down to 40 per cent, a large proportion of the labour force is engaged in the primary sector. The industrial enterprises established in the state are not labour absorptive. In fact there are overtones of a colonial structure with the state economy benefitting only marginally. An analysis of the industrial output levels from 1971-76 shows that those industries which are based on local resources have fared badly. The advent of large industries had also led to a spurt in the development of small industries, producing about 180 items for the large industries. Referring to the theoretical exercise in the paper, it was observed that the relationships spelt out dealt with psychological propensities and not economic issues. The absorptive capacity of an economy in terms of utilisation of technology relates to the accumulation process, time not being a relevant element. Referring to the view expressed in the paper that indirect taxation worked as a disincentive, some direct taxation acceptable to industry should be thought of. Regarding least cost calculations it was felt that these were significant criteria mainly in private profit calculation. A view was expressed that emphasis of national planning is on employment oriented industrial development. In this connection, it was stated that planning for full employment cannot be successfully

carried out without radical changes in production patterns and technologies. The issue involved impinges on a problem which is not only economic but moral and successful implementation required personal ethics. The problem of unemployment was enormous and rendered more complex by regional anomalies, as for example Rajasthan, which is a backward state but with very low levels of unemployment. Policies could be directed to putting more capital into labour intensive industries and more labour into capital intensive ones. Development of agriculture would also imply growth of certain industries such as fertilisers, pesticides, agricultural implements etc. Hence it would appear that a total development model rather than a sectoral model would be necessary. This approach would require quantification of statistical data of the sectors. An important aspect of future development would be to lay greater emphasis on entrepreneurial training to render self-employment programmes successful.

As a mark of sorrow on the passing away of Mr. M N. RAO, one of the Trustees of the Institute, the participants of the seminar observed silence for two minutes. They resolved to convey their heartfelt condolences to the bereaved family.

The sudden demise of Mr. M. N. Rao in Delhi on 15th February 1978, came as a shock and a loss to the members of the Institute. As a Trustee of the Institute he was associated with it from its very early days. In fact he was one of those who felt the need for an Institute of this kind in Madras and did whatever he could to help it establish itself. What endeared him most to those who came to know him were his unassuming and self-effacing qualities. In his death we have lost a tower of strength and a source of wise counsel.

The Institute conveys its sympathies and condolences to Mrs. Rao and members of the family in their bereavement.

THE KERALA MODEL*

Introduction

The Kerala Economy since Independence has become the subject of national and International attention and discussion over the last two years. The analysis of the Economy undertaken by economists and statisticians in Kerala has brought into the open many issues which are in the forefront of the goals and priorities that have been established for the Fifth Plan in this country and the development programmes of less-developed countries generally. The United Nations International Development Strategy for the Second Development Decade has also called attention to the performance of the Kerala Economy and has focussed some of its studies on the issues involved.

Use of Macro-Classical Tools

If the traditional classical macro-economic indicators are used to measure the performance of the Kerala Economy, the results obtained are not impressive. The growth of the economy over the three decades is less than 3 per cent compound and the per capita growth at less than 1 per cent places the economy at the bottom of the hierarchy of Indian States. The ratio of savings and investment to State income at around 10 per cent and 12 per cent respectively is well below the all-India averages. The incremental capital output ratio in agriculture is a high 1.8 and in medium and small industries 2.1. Using the input-output analysis and linear programming tools, the Kerala Economy over the 30 years shows the basic characteristics of stagnation. In terms of a shelf of projects and the project implementation record, the Kerela Economy is again at near about the bottom of the ladder.

NSS Estimates

The latest (26th) round of the National Sample Survey of Consumers Expenditures for 1973-74 which measures poverty in urban areas of the country at a level of Rs. 55 per capita a month and in rural areas at Rs. 43 per capita per month shows Kerala at the Sixth lowest place among the States, with 47.32 of the population being below the poverty line of whom 18.21 per cent are classed as severe destitutes and 28.53 per cent as destitutes. In rural Kerala these are 45.31 per cent, 17.24 per cent and 26.75 per cent respectively and in the urban areas 57.46 per cent, 23.12 per cent and 37.46 per cent (In regard to urban poverty the NSS survey places Kerala in the second lowest place). In regard to consumption of cereals and cereal substitutes, rural Kerala stands at the fourth lowest rank with per capita

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Extracts from a paper by Dr. Malcolm S. Adiseshiah for a Seminar on Kerala Economy since Indipendence held at the John Mathai Centre for Economics Calicut University in November 1977.

consumption of 14.68 kg. per month and urban Kerala at the seventh lowest place at 11.57 kg. per capita a month. The validity of these NSS estimates as for as Kerala is concerned has been widely debated both in this state and in all-India forums and the general conclusion that the NSS indicators and statistical parameters are not able to capture the real consumption pattern of the people in this state is now accepted.

Non-Conventional Indicators of the Economy's Performance

If however the performance of Kerala's economy is measured in terms of what the present Prime Minster likes to call *"the happiness of the people"* and if for this purpose other tools are used, a quite different picture emerges. First, because Kerala is the only State in India where the system of rationing of rice is enforced throughout the State including all its villages, there is a more equitable distribution of foodgrains, which are limited overall in the State. Second, Kerala has made much more progress in land reform than any other state in India, so that there is a basic equaliry in agrarian relations. In fact, the first phase of the agrarian reform has been completed in the State. Third, in Kerala, wages in the urban and rural areas are regulated by legislation and what is equally important the enforcement machinery is not only governmental but stems from the organisations of agricultural and non-agricultural workers. Fourth, Kerala is the only State which has registered a declining birth-rate, with economic, social and financial motivational factor's operating behind this much sought after goal by the entire country. Fifth, the education system in the State at the primary level operates with a much lower rate of drop-outs and push-outs than is characteristic of the system in other states and in the country generally. Similarly health facilities have been so planned and distributed that they are available to the rural people more adequately than in other States. The position of the health centres, as well as the quality of the service offered are such that the health care and promotive purposes are pushing forward at a satisfactory rate.

The Kerala Model

In other words, the Kerala Model of Development has resulted in attaining to a certain extent the goals of development: equitable public distribution of scarce foodg rains, less unjust agrarian relations, declining birth-rate, increasing holding power of the primary school, a not unsatisfactory minimum wage system and widespread, more universal, health facilities. The Kerala Model might, therefore, be termed as a Model based on social justice as opposed to the traditional Model based on GNP growth. If the judgement on a Model is its fruits, then the Kerala Model has to be taken seriously in that it has attained and is enlarging the desired development goals in the situation in which the people and the State are placed. The Kerala Model needs more attention by India's planners and economists for replication in other States and nationally.

Future

At the same time, I have a feeling that the Kerala Model has reached its operational limits. On its solid achievements, it now needs to supplemented and strengthened by increased and improved use of Kerala's resources. There is

urgent need for increase in land productivity in the State. There is an equally pressing need for catching up on the slow and halting rate of industrialisation of the State, using its natural endowments of power and energy, minerals, wood and forest products and sea resources. There are important agro and agri-industrial developyment areas that must be exploited if the gains made in the area of social justice and human welfare are to be sustained and enlarged. This, in turn, calls for a planned effort to mobilise resources, through increased savings and expanding investment and rates of gross and net capital formation. It is these traditional areas of increased agricultural productivity and accelerated industrialisation that must be built into the Kerala Model of Development and it is to ensuring that that we economists should now turn our attention.

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